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NEWS 5 FEB 06 Patent sequence location (PSL) data added to USGENE
NEWS 6 FEB 10 COMPENDEX reloaded and enhanced
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precise author group fields and 2009 MeSH terms
NEWS 13 FEB 23 Three million new patent records blast AEROSPACE into
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NEWS 14 FEB 25 USGENE enhanced with patent family and legal status
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NEWS 15 MAR 06 INPADOCDB and INPAFAMDB enhanced with new display
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applications and grants
NEWS 17 MAR 11 ESBIODBASE reloaded and enhanced
NEWS 18 MAR 20 CAS databases on STN enhanced with new super role
for nanomaterial substances
NEWS 19 MAR 23 CA/CAPLUS enhanced with more than 250,000 patent
equivalents from China
NEWS 20 MAR 30 IMSPATENTS reloaded and enhanced
NEWS 21 APR 03 CAS coverage of exemplified prophetic substances
enhanced
NEWS 22 APR 07 STN is raising the limits on saved answers
NEWS 23 APR 24 CA/CAPLUS now has more comprehensive patent assignee
information
NEWS 24 APR 26 USPATFULL and USPAT2 enhanced with patent
assignment/reassignment information
NEWS 25 APR 28 CAS patent authority coverage expanded
NEWS 26 APR 28 ENCOMPLIT/ENCOMPLIT2 search fields enhanced
NEWS 27 APR 28 Limits doubled for structure searching in CAS
REGISTRY

NEWS EXPRESS JUNE 27 08 CURRENT WINDOWS VERSION IS V8.3,

AND CURRENT DISCOVER FILE IS DATED 23 JUNE 2008.

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=> file reg
COST IN U.S. DOLLARS          SINCE FILE      TOTAL
                               ENTRY      SESSION
FULL ESTIMATED COST          0.22          0.22
```

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DICTIONARY FILE UPDATES: 4 MAY 2009 HIGHEST RN 1142334-49-3

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=> s (2-7)/li and 1/p and (0.01-1/Ti pr 0.01-1/cu or 0.01-1/zr or 0.01-1/mo or 0.01-1/ta or 0.01-1/w) and (3.5-8)/o
NUMERIC VALUE NOT VALID '1/TI PR 0.01-1'

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16344 (2-7)/LI
1115268 1/P
      0 0.01-1/TI PR 0.01-1/CU
161544 0.01-1/ZR
290966 0.01-1/MO
60168 0.01-1/TA
154099 0.01-1/W
15546686 (3.5-8)/O
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L1 175 (2-7)/LI AND 1/P AND (0.01-1/TI PR 0.01-1/CU OR 0.01-1/ZR OR 0.01-1/MO OR 0.01-1/TA OR 0.01-1/W) AND (3.5-8)/O

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297419 0.01-1/TI
493897 0.01-1/CU
161544 0.01-1/ZR
290966 0.01-1/MO
60168 0.01-1/TA
154099 0.01-1/W
15546686 (3.5-8)/O
L2 291 (2-7)/LI AND 1/P AND (0.01-1/TI OR 0.01-1/CU OR 0.01-1/ZR OR
0.01-1/MO OR 0.01-1/TA OR 0.01-1/W) AND (3.5-8)/O
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=> file caplus
COST IN U.S. DOLLARS SINCE FILE TOTAL
ENTRY SESSION
FULL ESTIMATED COST 93.83 94.05
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FILE 'CAPLUS' ENTERED AT 17:36:52 ON 05 MAY 2009
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FILE COVERS 1907 - 5 May 2009 VOL 150 ISS 19
 FILE LAST UPDATED: 4 May 2009 (20090504/ED)

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```

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=> d his
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(FILE 'HOME' ENTERED AT 17:32:50 ON 05 MAY 2009)

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FILE 'REGISTRY' ENTERED AT 17:33:21 ON 05 MAY 2009
L1 175 S (2-7)/LI AND 1/P AND (0.01-1/TI PR 0.01-1/CU OR 0.01-1/ZR OR
L2 291 S (2-7)/LI AND 1/P AND (0.01-1/TI OR 0.01-1/CU OR 0.01-1/ZR OR
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FILE 'CAPLUS' ENTERED AT 17:36:52 ON 05 MAY 2009

```
=> s l2 and (anode or electrode) and battery and (tin or silicon)
      116 L2
      168251 ANODE
      75040 ANODES
      189472 ANODE
            (ANODE OR ANODES)
      589958 ELECTRODE
      430742 ELECTRODES
      753481 ELECTRODE
            (ELECTRODE OR ELECTRODES)
      157173 BATTERY
      121928 BATTERIES
      171151 BATTERY
            (BATTERY OR BATTERIES)
      319330 TIN
            707 TINS
      319773 TIN
            (TIN OR TINS)
      935916 SILICON
            437 SILICONS
      936066 SILICON
            (SILICON OR SILICONS)
L3      9 L2 AND (ANODE OR ELECTRODE) AND BATTERY AND (TIN OR SILICON)
```

```
=> s l2 and (anode or electrode) and battery
      116 L2
      168251 ANODE
      75040 ANODES
      189472 ANODE
            (ANODE OR ANODES)
      589958 ELECTRODE
      430742 ELECTRODES
      753481 ELECTRODE
            (ELECTRODE OR ELECTRODES)
      157173 BATTERY
      121928 BATTERIES
      171151 BATTERY
            (BATTERY OR BATTERIES)
L4      27 L2 AND (ANODE OR ELECTRODE) AND BATTERY
```

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=> d (1-27) ibib ti it abs
'(1-27)' IS NOT A VALID FORMAT FOR FILE 'CAPLUS'
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The following are valid formats:

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ABS ----- GI and AB
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DALL ----- ALL, delimited (end of each field identified)
DMAX ----- MAX, delimited for post-processing
FAM ----- AN, PI and PRAI in table, plus Patent Family data
FBIB ----- AN, BIB, plus Patent FAM
IND ----- Indexing data
IPC ----- International Patent Classifications
MAX ----- ALL, plus Patent FAM, RE
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PATS ----- PI, SO
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 IABS ----- ABS, indented with text labels
 IALL ----- ALL, indented with text labels
 IBIB ----- BIB, indented with text labels
 IMAX ----- MAX, indented with text labels
 ISTD ----- STD, indented with text labels

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 SIBIB ----- IBIB, no citations

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 its structure diagram
 HITSEQ ----- HIT RN, its text modification, its CA index name, its
 structure diagram, plus NTE and SEQ fields
 FHITSTR ----- First HIT RN, its text modification, its CA index name, and
 its structure diagram
 FHITSEQ ----- First HIT RN, its text modification, its CA index name, its
 structure diagram, plus NTE and SEQ fields
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 OCC ----- Number of occurrence of hit term and field in which it occurs

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 ENTER DISPLAY FORMAT (BIB):ibib

L4 ANSWER 1 OF 27 CAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2009:296069 CAPLUS
 DOCUMENT NUMBER: 150:310372
 TITLE: Rechargeable lithium battery with an
 anode containing lithium-vanadium-based oxide
 INVENTOR(S): Park, Su-Yeong; Choi, Nam-Soon; Yew, Kyoung-Han; Lee,
 Doo-Kyoung; Kim, Sung-Soo
 PATENT ASSIGNEE(S): Samsung SDI Co., Ltd., S. Korea
 SOURCE: U.S. Pat. Appl. Publ., 12pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 20090068566	A1	20090312	US 2008-208672
KR 2009027498	A	20090317	KR 2007-92763
CN 101388476	A	20090318	CN 2008-10149608
PRIORITY APPLN. INFO.:			KR 2007-92763
OTHER SOURCE(S):	MARPAT 150:310372		A 20070912

=> d 2-27 ibib ti it abs

L4 ANSWER 2 OF 27 CAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2008:1222514 CAPLUS
 DOCUMENT NUMBER: 149:451827
 TITLE: Electrode for rechargeable lithium battery and rechargeable lithium battery including same
 INVENTOR(S): Jung, Euy-Young; Hwang, Duck-Chul; Park, Yong-Chul; Kim, Jeom-Soo; Lee, Jong-Hwa; Ryu, Jae-Yul; Hur, So-Hyun
 PATENT ASSIGNEE(S): Samsung Sdi Co., Ltd, S. Korea
 SOURCE: U.S. Pat. Appl. Publ., 12pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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	US 20080248396	A1	20081009	US 2007-751958	20070522
	KR 2008090655	A	20081009	KR 2007-33744	20070405
PRIORITY APPLN. INFO.:				KR 2007-33744	A 20070405
TI	Electrode for rechargeable lithium battery and rechargeable lithium battery including same				
IT	Battery electrodes				
	Coating materials				
	Conducting polymers				
	Mesophase				
	(electrode for rechargeable lithium battery and rechargeable lithium battery including same)				
IT	Fluoropolymers, uses				
	Nitrile rubber, uses				
	Polyolefins				
	Polyoxyalkylenes, uses				
	Polyurethanes, uses				
	Styrene-butadiene rubber, uses				
RL:	TEM (Technical or engineered material use); USES (Uses)				
	(electrode for rechargeable lithium battery and rechargeable lithium battery including same)				
IT	Carbon fibers, uses				
RL:	SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)				
	(graphite; electrode for rechargeable lithium battery and rechargeable lithium battery including same)				
IT	Secondary batteries				
	(lithium; electrode for rechargeable lithium battery and rechargeable lithium battery including same)				
IT	Pitch fibers				
	(mesophase; electrode for rechargeable lithium battery and rechargeable lithium battery including same)				
IT	1314-62-1, Vanadium oxide (V2O5), uses 1317-33-5, Molybdenum sulfide				

(MoS₂), uses 7429-90-5, Aluminum, uses 7447-41-8, Lithium chloride, uses 7784-30-7, Aluminum phosphate alpo4 7791-03-9, Lithium perchlorate 9002-84-0, Ptfе 9002-89-5, Polyvinyl alcohol 9003-19-4, Polyvinylether 9003-20-7, Polyvinyl acetate 9003-22-9, Vinyl acetate-vinyl chloride copolymer 9003-39-8, Polyvinylpyrrolidone 9003-56-9, Acrylonitrile-butadiene-styrene copolymer 9004-35-7, 9010-88-2, Ethyl acrylate-methyl methacrylate copolymer 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer 10377-51-2, Lithium iodide 12017-96-8, Chromium lithium oxide (CrLiO₂) 12022-46-7, Iron lithium oxide (FeLiO₂) 12039-13-3, Titanium sulfide (TiS₂) 12057-19-1, Lithium titanium oxide (LiTiO₂) 12162-87-7, Lithium vanadium oxide livo2 12162-92-4, Lithium vanadium oxide (LiV₂O₅) 12169-03-8, Lithium yttrium oxide (LiY₂O₃) 12190-79-3, Cobalt lithium oxide (CoLiO₂) 12201-18-2, Lithium molybdenum sulfide (LiMoS₂) 12209-15-3, Lithium scandium oxide lisco2 13446-24-7, Magnesium phosphate mg2p2o7 13568-36-0, Lithium nickel vanadium oxide (LiNiVO₄) 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 24937-79-9, Polyvinylidene fluoride 25014-41-9, Polyacrylonitrile 25067-11-2, Hexafluoropropylene-tetrafluoroethylene copolymer 25086-89-9, 25322-68-3, Peo 27360-07-2 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 37220-89-6, Lithium aluminate 55326-82-4, Lithium titanium sulfide litis2 90076-65-6 131651-65-5, Lithium nonafluorobutanesulfonate 132843-44-8 244761-29-3, Lithium bisoxalateborate 329025-35-6, Iron lithium phosphate (Fe₂Li₁-3(PO₄)₃) 717133-99-8D, Butylene-ethylene-styrene triblock copolymer, sulfonated 884323-28-8, Lithium vanadium phosphate (Li₀-3V₂(PO₄)₃) 884323-29-9, Chromium lithium phosphate (Cr₂Li₀-3(PO₄)₃) 884323-30-2, Lithium manganese phosphate (Li₀-3Mn₂(PO₄)₃) 884323-31-3, Cobalt lithium phosphate (Co₂Li₀-3(PO₄)₃) 884323-32-4, Copper lithium phosphate (Cu₂Li₀-3(PO₄)₃) 1021187-13-2, uses 1067881-17-7, Lithium nickel phosphate (Li₀-3Ni₂(PO₄)₃)

RL: TEM (Technical or engineered material use); USES (Uses)
(electrode for rechargeable lithium battery and
rechargeable lithium battery including same)

IT 9003-18-3

RL: TEM (Technical or engineered material use); USES (Uses)
(nitrile rubber; electrode for rechargeable lithium
battery and rechargeable lithium battery including
same)

IT 9003-55-8

RL: TEM (Technical or engineered material use); USES (Uses)
(styrene-butadiene rubber; electrode for rechargeable lithium
battery and rechargeable lithium battery including
same)

AB An electrode, for a rechargeable lithium battery,
includes a current collector; an active material layer disposed on the
current collector; and a coating layer disposed on the active material
layer. The coating layer includes a lithium ion conductive polymer and an
inorg. material represented by Formula 1: M_wH_xPyO_z, wherein M is an
element selected from the group consisting of an alkali metal, an
alkaline-earth metal, a Group 13 element, a Group 14 element, a transition
element, a rare earth element, and a combination thereof; and
1≤w≤4, 0≤x≤4, 1≤y≤7, and
2≤z≤30.

L4 ANSWER 3 OF 27 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2008:611535 CAPLUS

DOCUMENT NUMBER: 148:565385

TITLE: Secondary lithium batteries with high
reliability at high temperature and electrode
for them

INVENTOR(S): Kato, Takashi
 PATENT ASSIGNEE(S): Ohara Inc., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 14pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	JP 2008117543	A	20080522	JP 2006-297183	20061031
PRIORITY APPLN. INFO.:				JP 2006-297183	20061031
TI	Secondary lithium batteries with high reliability at high temperature and electrode for them				
IT	Glass ceramics (aluminophosphosilicate or phosphate; secondary lithium batteries with electrodes containing Li mixed oxide glass ceramics)				
IT	Secondary batteries (lithium; secondary lithium batteries with electrodes containing Li mixed oxide glass ceramics)				
IT	Battery electrodes (secondary lithium batteries with electrodes containing Li mixed oxide glass ceramics)				
IT	936615-64-4P	1025484-11-0P	RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (glass-ceramics; secondary lithium batteries with electrodes containing Li mixed oxide glass ceramics)		
IT	951764-45-7		RL: TEM (Technical or engineered material use); USES (Uses) (glass-ceramics; secondary lithium batteries with electrodes containing Li mixed oxide glass ceramics)		
AB	The batteries employ ion-conductive nonaq. electrolytic solns., and cathodes and/or anodes containing Li ion-conductive inorg. solid electrolyte powders $\text{Li}_{1+x+y}(\text{Al}, \text{Ga})_x(\text{Ti}, \text{Ge})_{2-x}\text{Si}_y\text{P}_3-\text{yO}_{12}$ ($x, y = 0-1$), preferably Li mixed oxide glass ceramics. The powders inhibit reactions between electrode active mass and nonaq. electrolytic solns. at high temperature, contributing to high capacity retention of the batteries after repeated cycles.				

L4 ANSWER 4 OF 27 CAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2008:611476 CAPLUS
 DOCUMENT NUMBER: 148:565382
 TITLE: Secondary lithium batteries with high reliability at high temperature and anodes for them
 INVENTOR(S): Kato, Takashi
 PATENT ASSIGNEE(S): Ohara Inc., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 13pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	JP 2008117542	A	20080522	JP 2006-297178	20061031
	US 20080241698	A1	20081002	US 2007-931491	20071031
PRIORITY APPLN. INFO.:				JP 2006-297178	A 20061031

TI Secondary lithium batteries with high reliability at high temperature and anodes for them

IT Glass ceramics
(aluminophosphosilicate or phosphate; secondary lithium batteries with electrodes containing Li mixed oxide glass ceramics)

IT Secondary batteries
(lithium; secondary lithium batteries with electrodes containing Li mixed oxide glass ceramics)

IT Battery electrodes
Safety
(secondary lithium batteries with electrodes containing Li mixed oxide glass ceramics)

IT 936615-64-4P 1025484-11-0P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(glass-ceramics; secondary lithium batteries with electrodes containing Li mixed oxide glass ceramics)

IT 951764-45-7
RL: TEM (Technical or engineered material use); USES (Uses)
(glass-ceramics; secondary lithium batteries with electrodes containing Li mixed oxide glass ceramics)

AB The batteries employ cathodes and/or anodes containing <5% Li ion-conductive inorg. solid electrolyte powders, and ion-conductive nonaq. electrolytic solns. Preferably, the electrolyte powders contain crystals represented by $Li_{1+x}y(Al,Ga)_x(Ti,Ge)_2-xSi_yP_3-yO_{12}(x, y = 0-1)$, more preferably Li mixed oxide glass ceramics. The powders inhibit reactions between electrode active mass and nonaq. electrolytic solns. at high temperature, contributing to high capacity retention of the batteries after repeated cycles, and to safety.

L4 ANSWER 5 OF 27 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2007:175015 CAPLUS

DOCUMENT NUMBER: 146:232778

TITLE: Compliant seal structures for protected active metal anodes

INVENTOR(S): Visco, Steven J.; Nimon, Yevgeniy S.; De Jonghe, Lutgard C.; Katz, Bruce D.; Petrov, Alexei

PATENT ASSIGNEE(S): Polyplus Battery Company, USA

SOURCE: U.S. Pat. Appl. Publ., 54pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20070037058	A1	20070215	US 2006-501676	20060808
AU 2006280097	A1	20070222	AU 2006-280097	20060808
CA 2618635	A1	20070222	CA 2006-2618635	20060808
WO 2007021717	A2	20070222	WO 2006-US30985	20060808
WO 2007021717	A3	20071004		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,

	CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,	
	GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,	
	KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA	
EP 1917689	A2 20080507	EP 2006-813340 20060808
R:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,	
	IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL,	
	BA, HR, MK, RS	
JP 2009505355	T 20090205	JP 2008-526152 20060808
US 20070051620	A1 20070308	US 2006-514678 20060901
MX 2008002074	A 20080422	MX 2008-2074 20080211
US 20080182157	A1 20080731	US 2008-32564 20080215
KR 2008036139	A 20080424	KR 2008-705683 20080307
CN 101313426	A 20081126	CN 2006-80037611 20080409

PRIORITY APPLN. INFO.:

	US 2005-706886P	P 20050809
	US 2005-713668P	P 20050902
	US 2006-501676	A2 20060808
	WO 2006-US30985	W 20060808

TI Compliant seal structures for protected active metal anodes

IT Laminated materials
(Laminate 95014; compliant seal structures for protected active metal anodes)

IT Glass, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(active metal phosphorus oxynitride; compliant seal structures for protected active metal anodes)

IT Battery anodes
Glass ceramics
Primary batteries
Sealing compositions
Seals (parts)
Seawater
(compliant seal structures for protected active metal anodes)

IT Fluoropolymers, uses
Polyoxyalkylenes, uses
RL: MOA (Modifier or additive use); USES (Uses)
(compliant seal structures for protected active metal anodes)

IT Alkali metals, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(compliant seal structures for protected active metal anodes)

IT Epoxy resins, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(compliant seal structures for protected active metal anodes)

IT Halides
RL: TEM (Technical or engineered material use); USES (Uses)
(compliant seal structures for protected active metal anodes)

IT Nitrides
RL: TEM (Technical or engineered material use); USES (Uses)
(compliant seal structures for protected active metal anodes)

IT Polyamides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(compliant seal structures for protected active metal anodes)

IT Selenide glasses
RL: TEM (Technical or engineered material use); USES (Uses)
(compliant seal structures for protected active metal anodes)

IT Sulfide glasses
RL: TEM (Technical or engineered material use); USES (Uses)
(compliant seal structures for protected active metal anodes)

IT Group VA element compounds
RL: TEM (Technical or engineered material use); USES (Uses)
(phosphides; compliant seal structures for protected active metal anodes)

IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer 24937-79-9,

Pvdf 25014-41-9, Polyacrylonitrile 25322-68-3, Pco

RL: MOA (Modifier or additive use); USES (Uses)

(compliant seal structures for protected active metal anodes)

IT 96-47-9, 2-Methyltetrahydrofuran 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 646-06-0, 1,3-Dioxolane 1308-80-1, Copper nitride (Cu₃N) 1314-80-3, Phosphorus sulfide (P₂S₅) 2926-30-9, 7429-90-5, Aluminum, uses 7439-93-2, Lithium, uses 7439-95-4, Magnesium, uses 7440-22-4, Silver, uses 7440-23-5, Sodium, uses 7440-31-5, Tin, uses 7440-36-0, Antimony, uses 7440-43-9, Cadmium, uses 7440-44-0D, Carbon, intercalation compound 7440-55-3, Gallium, uses 7440-69-9, Bismuth, uses 7440-70-2, Calcium, uses 7440-74-6, Indium, uses 7447-41-8, Lithium chloride, uses 7550-35-8, Lithium bromide 7601-89-0, Sodium perchlorate 7789-24-4, Lithium fluoride, uses 7791-03-9, Lithium perchlorate 9003-27-4, Polyisobutylene 10377-51-2, Lithium iodide 10377-52-3, Lithium phosphate 12005-48-0, Aluminum sodium oxide Al₂Na₂O₃ 12005-86-6, Sodium hexafluoroarsenate 12024-22-5, Gallium sulfide (Ga₂S₃) 12025-34-2, Germanium sulfide (GeS₂) 12057-29-3, Lithium phosphide (Li₃P) 12136-58-2, Lithium sulfide 12505-59-8, Aluminum lithium oxide (AlLiO_{1.7}) 13755-29-8, Sodium tetrafluoroborate 13759-10-9, Silicon sulfide (SiS₂) 14283-07-9, Lithium tetrafluoroborate 16986-74-6, Iron sodium phosphate Fe₂Na₃(PO₄)₃ 21324-39-0, Sodium hexafluorophosphate 21324-40-3, Lithium hexafluorophosphate 26134-62-3, Lithium nitride (Li₃N) 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 36058-25-0, Iron lithium phosphate Fe₂Li₃(PO₄)₃ 37220-89-6, Lithium β-alumina 58572-20-6, Sodium zirconium phosphate silicate (Na₃Zr₂(PO₄)(SiO₄)₂) 64890-77-3, Gadolinium sodium silicate GdNa₅(SiO₃)₄ 65545-67-7, Dysprosium sodium silicate DyNa₅(SiO₃)₄ 70780-99-3, Liscicon 77641-62-4, Nasicon 81295-89-8, Lithium zirconium phosphate silicate (Li₃Zr₂(PO₄)(SiO₄)₂) 84953-65-1, Sodium zirconium phosphate Na₅Zr(PO₄)₃ 89072-99-1, Nasiglas 90076-65-6 91742-21-1 98537-01-0, Sodium titanium phosphate Na₅Ti(PO₄)₃ 106860-09-7, Niobium sodium phosphate NbNa₄(PO₄)₃ 132843-44-8 152894-04-7 171899-89-1, Lithium titanium phosphate Li₅Ti(PO₄)₃ 183113-86-2, Neodymium sodium silicate (NdNa₅(SiO₃)₄) 184905-46-2, Lithium nitrogen phosphorus oxide 236388-76-4, Lithium phosphide sulfide 252651-45-9, Lithium zirconium phosphate Li₅Zr(PO₄)₃ 722493-10-9, Hysol E 120HP 924882-22-4, Lanthanum lithium titanium oxide (La_{0.5}Li_{0.3}TiO₃) 924882-23-5

RL: TEM (Technical or engineered material use); USES (Uses)

(compliant seal structures for protected active metal anodes)

IT 11138-49-1, Sodium β-alumina

RL: TEM (Technical or engineered material use); USES (Uses)

(of β-alumina type, of β-alumina type; compliant seal structures for protected active metal anodes)

AB Protected anode architectures have ionically conductive protective membrane architectures that, in conjunction with compliant seal structures and anode backplanes, effectively enclose an active metal anode inside the interior of an anode compartment. This enclosure prevents the active metal from deleterious reaction with the environment external to the anode compartment, which may include aqueous, ambient moisture, and/or other materials corrosive to the active metal. The compliant seal structures are substantially impervious to anolytes, catholytes, dissolved species in electrolytes, and moisture and compliant to changes in anode volume such that phys. continuity between the anode protective architecture and backplane are maintained. The protected anode architectures can be used in arrays of protected anode architectures and battery cells of various configurations incorporating the protected anode architectures or arrays.

ACCESSION NUMBER: 2006:677807 CAPLUS

DOCUMENT NUMBER: 145:149067

TITLE: Cathode for secondary lithium battery and the battery

INVENTOR(S): Ugaji, Masaya; Mino, Shinji; Shibano, Yasuyuki; Ito, Shuji

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan

SOURCE: PCT Int. Appl., 35 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006073104	A1	20060713	WO 2005-JP24026	20051228
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
CN 101099250	A	20080102	CN 2005-80046088	20051228
US 20070292759	A1	20071220	US 2007-794089	20070625
KR 2007091182	A	20070907	KR 2007-715333	20070704
PRIORITY APPLN. INFO.:			JP 2005-1199	A 20050106
			WO 2005-JP24026	W 20051228
TI Cathode for secondary lithium battery and the battery				
IT Battery cathodes				
				(cathodes containing inorg. compds. coated lithium transition metal oxide layers for secondary lithium batteries)
IT 12057-17-9, Lithium manganese oxide (LiMn2O4)			12190-79-3, Cobalt lithium oxide (CoLiO2)	
RL: DEV (Device component use); USES (Uses)				
				(cathodes containing inorg. compds. coated lithium transition metal oxide layers for secondary lithium batteries)
IT 13453-69-5	782495-49-2, Lithium manganese oxide phosphate (Li2.8Mn0.200.3(P04))		782495-51-6, Cobalt lithium oxide phosphate (Co0.2Li2.800.17(P04))	
	782495-52-7, Lithium nickel oxide phosphate (Li2.8Ni0.200.1(P04))		782495-53-8, Copper lithium oxide phosphate (Cu0.2Li2.800.1(P04))	
	782495-54-9, Lithium zirconium oxide phosphate (Li2.8Zr0.200.3(P04))		782495-56-1, Lithium molybdenum oxide phosphate (Li2.8Mo0.200.5(P04))	
	782495-58-3, Lithium tantalum oxide phosphate (Li2.8Ta0.200.4(P04))		782495-59-4, Lithium tungsten oxide phosphate (Li2.8W0.200.5(P04))	
	782495-60-7, Lithium titanium oxide phosphate (Li4Ti0.250(P04))		782495-63-0, Lithium manganese oxide phosphate (Li3.25Mn0.250(P04))	
	782495-65-2, Lithium molybdenum oxide phosphate (Li3.5Mo0.250(P04))		782495-66-3, Lithium tantalum oxide phosphate (Li3.75Ta0.250(P04))	
	782495-67-4, Lithium tungsten oxide phosphate (Li3.5W0.250(P04))		782495-69-6, Lithium tungsten oxide phosphate (Li3.02W0.0100.04(P04))	
	782495-70-9, Lithium tungsten oxide phosphate (Li3.2W0.100.4(P04))		782495-72-1, Lithium tungsten oxide phosphate (Li3.66W0.3301.32(P04))	

782495-74-3, Lithium tungsten oxide phosphate (Li₅WO₄(PO₄))
 782495-76-5, Lithium tungsten oxide phosphate (Li₇W₂O₈(PO₄))
 816415-85-7, Boron lithium nitride oxide (BLi_{0.8}NO_{3.0}Li_{0.45}) 816416-34-9,
 Germanium lithium nitride oxide (GeLi_{1.8}NO_{3.0}Li_{0.45}) 816416-38-3, Aluminum
 lithium nitride oxide (ALi_{0.8}NO_{3.0}Li_{0.45}) 816416-40-7, Aluminum lithium
 nitride oxide (ALi_{1.4}NO_{3.0}Li_{0.45}) 816416-42-9, Carbon lithium nitride
 oxide (CLi_{1.8}NO_{3.0}Li_{0.45}) 816416-44-1, Gallium lithium nitride oxide
 (GaLi_{0.8}NO_{3.0}Li_{0.45}) 816416-46-3, Lithium sulfur nitride oxide
 (Li_{1.8}NO_{3.0}Li_{0.45}) 816416-50-9, Boron lithium nitride oxide silicate
 (B_{0.5}Li_{2.3}NO_{3.0}Li_{0.45}(SiO₄)_{0.5}) 816416-52-1, Germanium lithium nitride
 oxide silicate (Ge_{0.5}Li_{3.8}NO_{3.0}Li_{0.45}(SiO₄)_{0.5}) 816416-54-3, Carbon
 lithium nitride oxide silicate (C_{0.5}Li_{2.8}NO_{3.0}Li_{0.45}(SiO₄)_{0.5}) 816416-56-5
 , Lithium silicon nitride oxide sulfate (Li_{2.8}Si_{0.5}NO_{3.0}Li_{0.45}(SO₄)_{0.5})
 816416-60-1, Aluminum lithium borate nitride oxide
 (Al_{0.5}Li_{2.8}(BO₃)_{0.5}NO_{3.0}Li_{0.45}) 816416-62-3, Boron lithium carbonate
 nitride oxide (B_{0.5}Li_{1.3}(CO₃)_{0.5}NO_{3.0}Li_{0.45}) 816416-66-7, Boron lithium
 nitride oxide sulfate (B_{0.5}Li_{1.3}NO_{3.0}Li_{0.45}(SO₄)_{0.5}) 816416-68-9
 816416-70-3, Germanium lithium nitride oxide sulfate
 (Ge_{0.5}Li_{2.8}NO_{3.0}Li_{0.45}(SO₄)_{0.5}) 816416-72-5, Aluminum gallium lithium
 nitride oxide (Al_{0.5}Ga_{0.5}Li_{2.8}NO_{3.0}Li_{0.45}) 816416-74-7, Carbon lithium
 nitride oxide sulfate (C_{0.5}Li_{1.8}NO_{3.0}Li_{0.45}(SO₄)_{0.5}) 882681-95-0,
 Lithium titanium oxide phosphate (Li_{2.8}Ti_{0.2}NO_{3.0}Li_{0.45}(PO₄)_{0.5}) 882682-19-1
 , Lithium zirconium oxide phosphate (Li₄Zr_{0.2}NO_{3.0}Li_{0.45}(PO₄)_{0.5}) 882682-64-6,
 Lithium silicon nitride oxide (Li_{1.8}Si_{0.5}NO_{3.0}Li_{0.45}) 884739-67-7, Lithium
 silicon nitride oxide (Li_{1.8}Si_{0.5}NO_{3.0}Li_{0.45}) 884739-67-7, Lithium silicon
 nitride oxide (Li_{1.8}Si_{0.5}NO_{3.0}Li_{0.45}) 885096-04-8, Lithium silicon nitride
 oxide (Li_{1.8}Si_{0.5}NO_{3.0}Li_{0.45}) 898252-52-3, Lithium oxide silicate
 (Li_{1.8}NO_{3.0}Li_{0.45}(SiO₄)_{0.5}) 898252-53-4, Lithium silicon nitride oxide
 (Li_{1.8}Si_{0.5}NO_{3.0}Li_{0.45}) 898252-54-5, Lithium silicon nitride oxide
 (Li_{1.8}Si_{0.5}NO_{3.0}Li_{0.45}) 898252-55-6, Lithium silicon nitride oxide
 (Li_{1.8}Si_{0.5}NO_{3.0}Li_{0.45}) 944251-30-3

RL: MOA (Modifier or additive use); USES (Uses)
 (cathodes containing inorg. compds. coated lithium transition metal oxide
 layers for secondary lithium batteries)

AB The cathode has a conductive collector, a cathode active mass layer containing
 a compound which consists Co, Ni, and/or Mn and in contact with the
 collector, and a coating layer composed of a Li⁺-conductive inorg. compound:
 Li_xP_yO_z [T = Ti, Cu, Zr, Mo, Co, Ni, Mn, Ta and/or W; x = 2-7; and y =
 0.01-1; and z = 3.5-8] or Li_aMO_bN_c [M = Si, B, Ge, Al, C, Ga, and/or S; (a
 = 0.6-1; b = 1.05-1.99, c = 0.01-0.5), (a = 1.6-2; b = 2.05-2.99, c =
 0.01-0.5), (a = 1.6-2; b = 3.05-3.99, c = 0.01-0.5), or (a = 4.6-5; b =
 3.05-3.99, c = 0.01-0.5)] and formed on at least part of the cathode
 active mass layer. The battery has the above cathode, a
 Li⁺-conductive electrode, and a Li-intercalating anode

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 7 OF 27 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2006:443057 CAPLUS

DOCUMENT NUMBER: 144:436139

TITLE: Solid electrolyte lithium battery using
 lithium phosphorus mixed oxide or lithium mixed
 oxynitride electrolyte

INVENTOR(S): Ukaji, Masaya; Mino, Shinji; Shibano, Yasuyuki; Ito,
 Shuji

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 19 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	JP 2006120437	A	20060511	JP 2004-306650	20041021
PRIORITY APPLN. INFO.:				JP 2004-306650	20041021
II	Solid electrolyte lithium battery using lithium phosphorus mixed oxide or lithium mixed oxynitride electrolyte				
IT	Battery electrolytes				
	Solid electrolytes				
	(solid electrolyte Li battery with long cycle life using				
	Li-P-transition metal mixed oxide or Li mixed oxynitride electrolyte)				
IT	782495-23-2, Lithium titanium metaphosphate oxide				
	(Li2.8Ti0.2(P03)00.9)		782495-24-3, Lithium vanadium metaphosphate oxide		
	(Li2.8V0.2(P03)00.9)		782495-25-4, Chromium lithium metaphosphate oxide		
	(Cr0.2Li2.8(P03)00.9)		782495-26-5, Lithium manganese metaphosphate oxide		
	(Li2.8Mn0.2(P03)00.9)		782495-27-6, Iron lithium metaphosphate oxide		
	(Fe0.2Li2.8(P03)00.9)		782495-28-7, Cobalt lithium metaphosphate oxide		
	(Co0.2Li2.8(P03)00.9)		782495-29-8, Lithium nickel metaphosphate oxide		
	(Li2.8Ni0.2(P03)00.9)		782495-30-1, Copper lithium metaphosphate oxide		
	(Cu0.2Li2.8(P03)00.9)		782495-31-2, Lithium zirconium metaphosphate oxide		
	(Li2.8Zr0.2(P03)00.9)		782495-32-3, Lithium niobium metaphosphate oxide		
	(Li2.8Nb0.2(P03)00.9)		782495-33-4, Lithium molybdenum metaphosphate oxide		
	(Li2.8Mo0.2(P03)00.9)		782495-34-5, Lithium ruthenium metaphosphate oxide		
	(Li2.8Ru0.2(P03)00.9)		782495-35-6, Lithium silver metaphosphate oxide		
	(Li2.8Ag0.2(P03)00.9)		782495-36-7, Lithium tantalum metaphosphate oxide		
	(Li2.8Ta0.2(P03)00.9)		782495-37-8, Lithium tungsten metaphosphate oxide		
	(Li2.8W0.2(P03)00.9)		782495-38-9, Lithium platinum metaphosphate oxide		
	(Li2.8Pt0.2(P03)00.9)		782495-39-0, Gold lithium metaphosphate oxide		
	(Au0.2Li2.8(P03)00.9)		782495-41-4, Lithium tungsten metaphosphate oxide		
	(Li2.8W0.01(P03)00.9)		782495-42-5, Lithium tungsten metaphosphate oxide		
	(Li2.8W0.05(P03)00.9)		782495-43-6, Lithium tungsten metaphosphate oxide		
	(Li2.8W0.1(P03)00.9)		782495-44-7, Lithium tungsten metaphosphate oxide		
	(Li2.8W0.5(P03)00.9)		782495-47-0, Lithium vanadium oxide phosphate		
	(Li2.8V0.200.4(P04))		782495-48-1, Chromium lithium oxide phosphate		
	(Cr0.2Li2.800.2(P04))		782495-49-2, Lithium manganese oxide phosphate		
	(Li2.8Mn0.200.3(P04))		782495-50-5, Iron lithium oxide phosphate		
	(Fe0.2Li2.800.17(P04))		782495-51-6, Cobalt lithium oxide phosphate		
	(Co0.2Li2.800.17(P04))		782495-52-7, Lithium nickel oxide phosphate		
	(Li2.8Ni0.200.1(P04))		782495-53-8, Copper lithium oxide phosphate		
	(Cu0.2Li2.800.1(P04))		782495-54-9, Lithium zirconium oxide phosphate		
	(Li2.8Zr0.200.3(P04))		782495-55-0, Lithium niobium oxide phosphate		
	(Li2.8Nb0.200.4(P04))		782495-56-1, Lithium molybdenum oxide phosphate		
	(Li2.8Mo0.200.5(P04))		782495-57-2, Lithium silver phosphate		
	(Li2.8Ag0.2(P04))		782495-58-3, Lithium tantalum oxide phosphate		
	(Li2.8Ta0.200.4(P04))		782495-59-4, Lithium tungsten oxide phosphate		
	(Li2.8W0.200.5(P04))		782495-60-7, Lithium titanium oxide phosphate		
	(Li4Ti0.250(P04))		782495-61-8, Lithium vanadium oxide phosphate		
	(Li3.75V0.250(P04))		782495-62-9, Chromium lithium oxide phosphate		
	(Cr0.25Li3.50(P04))		782495-63-0, Lithium manganese oxide phosphate		
	(Li3.25Mn0.250(P04))		782495-64-1, Lithium niobium oxide phosphate		
	(Li3.75Nb0.250(P04))		782495-65-2, Lithium molybdenum oxide phosphate		
	(Li3.5Mo0.250(P04))		782495-66-3, Lithium tantalum oxide phosphate		
	(Li3.75Ta0.250(P04))		782495-67-4, Lithium tungsten oxide phosphate		
	(Li3.5W0.250(P04))		782495-69-6, Lithium tungsten oxide phosphate		
	(Li3.02W0.0100.04(P04))		782495-70-9, Lithium tungsten oxide phosphate		
	(Li3.2W0.100.4(P04))		782495-72-1, Lithium tungsten oxide phosphate		
	(Li3.66W0.3301.32(P04))		782495-74-3, Lithium tungsten oxide phosphate		
	(Li5W04(P04))		816415-85-7, Boron lithium nitride oxide		

(BLi0.8NO.301.45) 816416-34-9, Germanium lithium nitride oxide
 (GeLi1.8NO.302.45) 816416-38-3, Aluminum lithium nitride oxide
 (AlLi0.8NO.301.45) 816416-40-7, Aluminum lithium nitride oxide
 (AlLi4.8NO.303.45) 816416-42-9, Carbon lithium nitride oxide
 (CLi1.8NO.302.45) 816416-44-1, Gallium lithium nitride oxide
 (GaLi0.8NO.301.45) 816416-46-3, Lithium sulfur nitride oxide
 (Li1.8SNO.303.45) 816416-50-9, Boron lithium nitride oxide silicate
 (B0.5Li2.3NO.300.45)(SiO4)0.5) 816416-52-1, Germanium lithium nitride
 oxide silicate (Ge0.5Li3.8NO.301.45)(SiO4)0.5) 816416-54-3, Carbon
 lithium nitride oxide silicate (C0.5Li2.8NO.302.95)(SiO4)0.5)
 816416-56-5, Lithium silicon nitride oxide sulfate
 (Li2.8Si0.5NO.301.45)(SO4)0.5) 816416-58-7, Germanium lithium borate
 nitride oxide (Ge0.5Li2.3(BO3)0.5NO.300.95) 816416-60-1, Aluminum
 lithium borate nitride oxide (Al0.5Li2.8(BO3)0.5NO.300.95) 816416-62-3,
 Boron lithium carbonate nitride oxide (B0.5Li1.3(CO3)0.5NO.300.45)
 816416-64-5, Gallium lithium borate nitride oxide
 (Ga0.5Li0.8(BO2)0.5NO.300.45) 816416-66-7, Boron lithium nitride oxide
 sulfate (B0.5Li1.3NO.300.45)(SO4)0.5) 816416-68-9 816416-70-3,
 Germanium lithium nitride oxide sulfate (Ge0.5Li2.8NO.301.45)(SO4)0.5)
 816416-72-5, Aluminum gallium lithium nitride oxide
 (Al0.5Ga0.5Li2.8NO.302.45) 816416-74-7, Carbon lithium nitride oxide
 sulfate (C0.5Li1.8NO.300.95)(SO4)0.5) 882681-95-0, Lithium
 titanium oxide phosphate (Li2.8Ti0.200.3(PO4)) 882682-19-1,
 Lithium zirconium oxide phosphate (Li4Zr0.250(PO4)) 882682-64-6, Lithium
 silicon nitride oxide (Li1.8SiNO.502.15) 884739-67-7, Lithium silicon
 nitride oxide (Li1.8SiNO.302.45) 885096-04-8, Lithium silicon nitride
 oxide (Li1.8SiNO.0102.88) 885096-05-9, Lithium silicon nitride oxide
 (Li1.8SiNO.102.75)

RL: DEV (Device component use); USES (Uses)

(solid electrolyte Li battery with long cycle life using
 Li-P-transition metal mixed oxide or Li mixed oxynitride electrolyte)

AB The disclosed battery has a Li ion-conductive solid electrolyte
 and amorphous SiO2 which is chemical bonded to the interfaces between the
 electrolyte and anode and/or cathode active mass, wherein the
 electrolyte is a compound represented by (1) Li_xPTyO_z ($T = \text{Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zr, Nb, Mo, Ru, Ag, Ta, W, Pt}$ and/or Au ; $x = 2.0-7.0$; $y = 0.01-1.0$; $z = 3.5-8.0$) or (2) $\text{Li}_x\text{MO}_y\text{N}_z$ [$M = \text{Si, B, Ge, Al, C, Ga}$ and/or S ; $x = 0.6-1.0$, $y = 1.05-1.99$, $z = 0.01-0.5$; $x = 1.6-2.0$, $y = 2.05-2.99$, $z = 0.01-0.5$; $x = 1.6-2.0$, $y = 3.05-3.99$, $z = 0.01-0.5$; or $x = 4.6-5.0$, $y = 3.05-3.99$, $z = 0.01-0.5$]. The solid electrolyte has high moisture
 resistance and ion conductivity, and the battery shows low internal
 resistance and long cycle life.

L4 ANSWER 8 OF 27 CAPLUS COPYRIGHT 2009 ACS ON STN

ACCESSION NUMBER: 2006:443021 CAPLUS

DOCUMENT NUMBER: 144:436133

TITLE: Lithium secondary batteries having
 wet-stable oxide or nitride-based ionic conductors and
 their anodes

INVENTOR(S): Ukaji, Masaya; Mino, Shinji; Shibano, Yasuyuki; Ito,
 Shuji

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006120337	A	20060511	JP 2004-304089	20041019

- TI Lithium secondary batteries having wet-stable oxide or nitride-based ionic conductors and their anodes
- IT Secondary batteries
(button-type; manufacture of lithium secondary batteries having wet-stable oxide or nitride-based ionic conductors)
- IT Secondary batteries
(lithium; manufacture of lithium secondary batteries having wet-stable oxide or nitride-based ionic conductors)
- IT Battery anodes
Ionic conductors
(manufacture of lithium secondary batteries having wet-stable oxide or nitride-based ionic conductors)
- IT 7440-50-8, Copper, uses
RL: DEV (Device component use); USES (Uses)
(anode components; manufacture of lithium secondary batteries having wet-stable oxide or nitride-based ionic conductors)
- IT 782495-23-2P, Lithium titanium metaphosphate oxide (Li₂.8Ti_{0.2}(PO₃)_{00.9}) 782495-24-3P, Lithium vanadium metaphosphate oxide (Li₂.8V_{0.2}(PO₃)_{00.9}) 782495-25-4P, Chromium lithium metaphosphate oxide (Cr_{0.2}Li_{2.8}(PO₃)_{00.9}) 782495-26-5P, Lithium manganese metaphosphate oxide (Li₂.8Mn_{0.2}(PO₃)_{00.9}) 782495-27-6P, Iron lithium metaphosphate oxide (Fe_{0.2}Li_{2.8}(PO₃)_{00.9}) 782495-28-7P, Cobalt lithium metaphosphate oxide (Co_{0.2}Li_{2.8}(PO₃)_{00.9}) 782495-29-8P, Lithium nickel metaphosphate oxide (Li₂.8Ni_{0.2}(PO₃)_{00.9}) 782495-30-1P, Copper lithium metaphosphate oxide (Cu_{0.2}Li_{2.8}(PO₃)_{00.9}) 782495-31-2P, Lithium zirconium metaphosphate oxide (Li₂.8Zr_{0.2}(PO₃)_{00.9}) 782495-32-3P, Lithium niobium metaphosphate oxide (Li₂.8Nb_{0.2}(PO₃)_{00.9}) 782495-33-4P, Lithium molybdenum metaphosphate oxide (Li₂.8Mo_{0.2}(PO₃)_{00.9}) 782495-34-5P, Lithium ruthenium metaphosphate oxide (Li₂.8Ru_{0.2}(PO₃)_{00.9}) 782495-35-6P, Lithium silver metaphosphate oxide (Li₂.8Ag_{0.2}(PO₃)_{00.9}) 782495-36-7P, Lithium tantalum metaphosphate oxide (Li₂.8Ta_{0.2}(PO₃)_{00.9}) 782495-37-8P, Lithium tungsten metaphosphate oxide (Li₂.8W_{0.2}(PO₃)_{00.9}) 782495-38-9P, Lithium platinum metaphosphate oxide (Li₂.8Pt_{0.2}(PO₃)_{00.9}) 782495-39-0P, Gold lithium metaphosphate oxide (Au_{0.2}Li_{2.8}(PO₃)_{00.9}) 782495-41-4P, Lithium tungsten metaphosphate oxide (Li₂.8W_{0.01}(PO₃)_{00.9}) 782495-42-5P, Lithium tungsten metaphosphate oxide (Li₂.8W_{0.05}(PO₃)_{00.9}) 782495-43-6P, Lithium tungsten metaphosphate oxide (Li₂.8W_{0.1}(PO₃)_{00.9}) 782495-44-7P, Lithium tungsten metaphosphate oxide (Li₂.8W_{0.5}(PO₃)_{00.9}) 782495-47-0P, Lithium vanadium oxide phosphate (Li₂.8V_{0.200.4}(PO₄)) 782495-48-1P, Chromium lithium oxide phosphate (Cr_{0.2}Li_{2.800.2}(PO₄)) 782495-49-2P, Lithium manganese oxide phosphate (Li₂.8Mn_{0.200.3}(PO₄)) 782495-50-5P, Iron lithium oxide phosphate (Fe_{0.2}Li_{2.800.17}(PO₄)) 782495-51-6P, Cobalt lithium oxide phosphate (Co_{0.2}Li_{2.800.17}(PO₄)) 782495-52-7P, Lithium nickel oxide phosphate (Li₂.8Ni_{0.200.1}(PO₄)) 782495-53-8P, Copper lithium oxide phosphate (Cu_{0.2}Li_{2.800.1}(PO₄)) 782495-54-9P, Lithium zirconium oxide phosphate (Li₂.8Zr_{0.200.3}(PO₄)) 782495-55-0P, Lithium niobium oxide phosphate (Li₂.8Nb_{0.200.4}(PO₄)) 782495-56-1P, Lithium molybdenum oxide phosphate (Li₂.8Mo_{0.200.5}(PO₄)) 782495-57-2P, Lithium silver phosphate (Li₂.8Ag_{0.2}(PO₄)) 782495-58-3P, Lithium tantalum oxide phosphate (Li₂.8Ta_{0.200.4}(PO₄)) 782495-59-4P, Lithium tungsten oxide phosphate (Li₂.8W_{0.200.5}(PO₄)) 782495-60-7P, Lithium titanium oxide phosphate (Li₄Ti_{0.250}(PO₄)) 782495-61-8P, Lithium vanadium oxide phosphate (Li₃.75V_{0.250}(PO₄)) 782495-62-9P, Chromium lithium oxide phosphate (Cr_{0.25}Li_{3.50}(PO₄)) 782495-63-0P, Lithium manganese oxide phosphate (Li_{3.25}Mn_{0.250}(PO₄)) 782495-64-1P, Lithium niobium oxide phosphate (Li_{3.75}Nb_{0.250}(PO₄)) 782495-65-2P, Lithium molybdenum oxide phosphate (Li_{3.50}Mo_{0.250}(PO₄)) 782495-66-3P, Lithium tantalum oxide phosphate

(Li₃.75Ta_{0.250}(PO₄)) 782495-67-4P, Lithium tungsten oxide phosphate (Li₃.5W_{0.250}(PO₄)) 782495-69-6P, Lithium tungsten oxide phosphate (Li₃.02W_{0.0100.04}(PO₄)) 782495-70-9P, Lithium tungsten oxide phosphate (Li₃.2W_{0.100.4}(PO₄)) 782495-72-1P, Lithium tungsten oxide phosphate (Li₃.66W_{0.3301.32}(PO₄)) 782495-74-3P, Lithium tungsten oxide phosphate (Li₅W_{0.4}(PO₄)) 782495-76-5P, Lithium tungsten oxide phosphate (Li₇W_{0.208}(PO₄)) 816415-85-7P, Boron lithium nitride oxide (BLi_{0.8}N_{0.301.45}) 816416-34-9P, Germanium lithium nitride oxide (GeLi_{1.8}N_{0.302.45}) 816416-38-3P, Aluminum lithium nitride oxide (ALi_{1.8}N_{0.301.45}) 816416-40-7P, Aluminum lithium nitride oxide (ALi_{4.8}N_{0.303.45}) 816416-44-1P, Gallium lithium nitride oxide (GaLi_{0.8}N_{0.301.45}) 816416-46-3P, Lithium sulfur nitride oxide (Li_{1.8}S_{0.303.45}) 816416-50-9P, Boron lithium nitride oxide silicate (B_{0.5}Li_{2.3}N_{0.300.45}(SiO₄)_{0.5}) 816416-52-1P, Germanium lithium nitride oxide silicate (Ge_{0.5}Li_{3.8}N_{0.301.45}(SiO₄)_{0.5}) 816416-54-3P, Carbon lithium nitride oxide silicate (C_{0.5}Li_{2.8}N_{0.302.95}(SiO₄)_{0.5}) 816416-56-5P, Lithium silicon nitride oxide sulfate (Li_{2.8}Si_{0.5}N_{0.301.45}(SO₄)_{0.5}) 816416-58-7P, Germanium lithium borate nitride oxide (Ge_{0.5}Li_{2.3}(BO₃)_{0.5}N_{0.300.95}) 816416-60-1P, Aluminum lithium borate nitride oxide (Al_{0.5}Li_{2.8}(BO₃)_{0.5}N_{0.300.95}) 816416-62-3P, Boron lithium carbonate nitride oxide (B_{0.5}Li_{1.3}(CO₃)_{0.5}N_{0.300.45}) 816416-64-5P, Gallium lithium borate nitride oxide (Ga_{0.5}Li_{0.8}(BO₂)_{0.5}N_{0.300.45}) 816416-66-7P, Boron lithium nitride oxide sulfate (B_{0.5}Li_{1.3}N_{0.300.45}(SO₄)_{0.5}) 816416-68-9P 816416-70-3P, Germanium lithium nitride oxide sulfate (Ge_{0.5}Li_{2.8}N_{0.301.45}(SO₄)_{0.5}) 816416-72-5P, Aluminum gallium lithium nitride oxide (Al_{0.5}Ga_{0.5}Li_{2.8}N_{0.302.45}) 816416-74-7P, Carbon lithium nitride oxide sulfate (C_{0.5}Li_{1.8}N_{0.300.95}(SO₄)_{0.5}) 882681-95-0P, Lithium titanium oxide phosphate (Li_{2.8}Ti_{0.200.3}(PO₄)) 882682-19-1P, Lithium zirconium oxide phosphate (Li_{4.2}Zr_{0.250}(PO₄)) 882682-64-6P, Lithium silicon nitride oxide (Li_{1.8}Si_{0.502.15}) 884739-67-7P, Lithium silicon nitride oxide (Li_{1.8}Si_{0.302.45}) 885122-24-7P, Aluminum lithium nitride oxide (ALi_{1.8}N_{0.302.45})

RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)

(anodes; manufacture of lithium secondary batteries having wet-stable oxide or nitride-based ionic conductors)

IT 12190-79-3, Lithium cobaltate (LiCoO₂)

RL: DEV (Device component use); USES (Uses)

(cathode active mass; manufacture of lithium secondary batteries having wet-stable oxide or nitride-based ionic conductors)

IT 11109-50-5, SUS 304

RL: DEV (Device component use); USES (Uses)

(copper-deposited, anode substrates; manufacture of lithium secondary batteries having wet-stable oxide or nitride-based ionic conductors)

IT 7439-93-2, Lithium, uses

RL: DEV (Device component use); USES (Uses)

(precipitated, anode components; manufacture of lithium secondary batteries having wet-stable oxide or nitride-based ionic conductors)

AB The anodes consist of Li-precipitating conductive substrates and Li ion-conductive layers represented by Lx₁PTy₁Oz₁ or Lx₂Moy₂Nz₂ [T = Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zr, Nb, Mo, Ru, Ag, Ta, W, Pt, and/or Au; 2.0 ≤ x₁ ≤ 7.0; 0.01 ≤ y₁ ≤ 1.0; 3.5 ≤ z₁ ≤ 8.0; M = Si, B, Ge, Al, C, Ga, and/or S; plural range sets of (x₂, y₂, z₂) are given] and being formed on the substrate surface. Lithium secondary batteries employing the anodes suppress rise in anode impedance and show long cycle life.

ACCESSION NUMBER: 2006:384961 CAPLUS
 DOCUMENT NUMBER: 144:436091
 TITLE: Lithium battery anode with inorg. compound. layer formed on active material layer
 Ugaji, Masaya; Mino, Shinji; Shibano, Yasuyuki; Ito, Shuji
 INVENTOR(S): Matsushita Electric Industrial Co., Ltd., Japan
 PATENT ASSIGNEE(S):
 SOURCE: PCT Int. Appl., 32 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006043470	A1	20060427	WO 2005-JP18917	20051014
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
EP 1677375	A1	20060705	EP 2005-793190	20051014
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, BA, HR, IS, YU				
CN 1860628	A	20061108	CN 2005-80001076	20051014
CN 100454613	C	20090121		
KR 2006085625	A	20060727	KR 2006-706328	20060331
US 20070020520	A1	20070125	US 2006-575889	20060414
PRIORITY APPLN. INFO.:			JP 2004-306649	A 20041021
			WO 2005-JP18917	W 20051014
TI	Lithium battery anode with inorg. compound. layer formed on active material layer			
IT	Battery anodes (lithium battery anode; lithium battery anode with inorg. compound. layer formed on active material layer)			
IT	7440-21-3, Silicon, uses 7440-31-5, Tin, uses 7631-86-9, Silica, uses 12039-83-7, Titanium silicide (TiSi ₂) 12202-01-6 RL: TEM (Technical or engineered material use); USES (Uses) (anode-active material for lithium battery)			
IT	782495-53-8, Copper lithium oxide phosphate (Cu _{0.2} Li ₂ 800.1(P ₀₄)) 782495-54-9, Lithium zirconium oxide phosphate (Li ₂ .8Zr _{0.200.3} (P ₀₄)) 782495-56-1, Lithium molybdenum oxide phosphate (Li ₂ .8Mo _{0.200.5} (P ₀₄)) 782495-58-3, Lithium tantalum oxide phosphate (Li ₂ .8Ta _{0.200.4} (P ₀₄)) 782495-59-4, Lithium tungsten oxide phosphate (Li ₂ .8W _{0.200.5} (P ₀₄)) 782495-60-7, Lithium titanium oxide phosphate (Li ₄ Ti _{0.250} (P ₀₄)) 782495-65-2, Lithium molybdenum oxide phosphate (Li _{3.5} Mo _{0.250} (P ₀₄)) 782495-66-3, Lithium tantalum oxide phosphate (Li _{3.75} Ta _{0.250} (P ₀₄)) 782495-67-4, Lithium tungsten oxide phosphate (Li _{3.5} W _{0.250} (P ₀₄)) 782495-69-6, Lithium tungsten oxide phosphate (Li _{3.0} W _{0.100.04} (P ₀₄)) 782495-70-9, Lithium tungsten oxide phosphate (Li _{3.2} W _{0.100.4} (P ₀₄)) 782495-72-1, Lithium tungsten			

oxide phosphate (Li₃.66W_{0.33}O₄(PO₄)) 782495-74-3, Lithium tungsten oxide phosphate (Li₅WO₄(PO₄)) 782495-76-5, Lithium tungsten oxide phosphate (Li₇W₂O₈(PO₄)) 816415-85-7, Boron lithium nitride oxide (BLi_{0.8}NO₃O_{1.45}) 816416-34-9, Germanium lithium nitride oxide (GeLi_{1.8}NO₃O_{2.45}) 816416-38-3, Aluminum lithium nitride oxide (ALi_{1.8}NO₃O_{1.45}) 816416-40-7, Aluminum lithium nitride oxide (ALi_{1.4}NO₃O_{3.45}) 816416-42-9, Carbon lithium nitride oxide (CLi_{1.8}NO₃O_{2.45}) 816416-44-1, Gallium lithium nitride oxide (GaLi_{0.8}NO₃O_{1.45}) 816416-46-3, Lithium sulfur nitride oxide (Li_{1.8}SN_{0.3}O_{3.45}) 816416-50-9, Boron lithium nitride oxide silicate (B_{0.5}Li_{2.3}NO₃O_{4.5}(SiO₄)_{0.5}) 816416-52-1, Germanium lithium nitride oxide silicate (Ge_{0.5}Li_{3.8}NO₃O_{4.5}(SiO₄)_{0.5}) 816416-54-3, Carbon lithium nitride oxide silicate (C_{0.5}Li_{2.8}NO₃O_{2.95}(SiO₄)_{0.5}) 816416-56-5, Lithium silicon nitride oxide sulfate (Li_{2.8}Si_{0.5}NO₃O_{1.45}(SO₄)_{0.5}) 816416-58-7, Germanium lithium borate nitride oxide (Ge_{0.5}Li_{2.3}(BO₃)_{0.5}NO₃O_{3.95}) 816416-60-1, Aluminum lithium borate nitride oxide (Al_{0.5}Li_{2.8}(BO₃)_{0.5}NO₃O_{3.95}) 816416-62-3, Boron lithium carbonate nitride oxide (B_{0.5}Li_{1.3}(CO₃)_{0.5}NO₃O_{3.95}) 816416-64-5, Gallium lithium borate nitride oxide (Ga_{0.5}Li_{0.8}(BO₂)_{0.5}NO₃O_{3.45}) 816416-66-7, Boron lithium nitride oxide sulfate (B_{0.5}Li_{1.3}NO₃O_{4.5}(SO₄)_{0.5}) 816416-68-9 816416-70-3, Germanium lithium nitride oxide sulfate (Ge_{0.5}Li_{2.8}NO₃O_{4.5}(SO₄)_{0.5}) 816416-74-7, Carbon lithium nitride oxide sulfate (C_{0.5}Li_{1.8}NO₃O_{3.95}(SO₄)_{0.5}) 882681-95-0, Lithium titanium oxide phosphate (Li_{2.8}Ti_{0.2}O_{2.0}(PO₄)) 882682-19-1, Lithium zirconium oxide phosphate (Li₄Zr_{0.25}O₄(PO₄)) 882682-64-6, Lithium silicon nitride oxide (Li_{1.8}Si_{0.5}O_{2.15}) 884739-67-7, Lithium silicon nitride oxide (Li_{1.8}Si_{0.5}O_{2.45})

RL: TEM (Technical or engineered material use); USES (Uses)

(inorg. compound. layer for lithium battery)

AB Disclosed is a neg. electrode for batteries which comprises a collector, an active material layer and an inorg. compound. layer. The active material layer is formed on the collector, and the inorg. compound. layer is formed on the surface of the active material layer. The general formula of the inorg. compound. layer is expressed as Li_xP_yO_z or Li_xMO_yN_z. The compound. constituting the inorg. compound. layer has lithium ion conductivity and excellent moisture resistance.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 10 OF 27 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2006:357059 CAPLUS

DOCUMENT NUMBER: 144:415885

TITLE: Secondary bipolar lithium battery, its

manufacture, group battery, and vehicle

INVENTOR(S): Hisamitsu, Yasunari; Osawa, Yasuhiko; Nemoto, Koichi

PATENT ASSIGNEE(S): Nissan Motor Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006107963	A	20060420	JP 2004-294185	20041006
PRIORITY APPLN. INFO.:			JP 2004-294185	20041006
TI Secondary bipolar lithium battery, its manufacture, group battery, and vehicle				
IT Secondary batteries				
(lithium; structure and manufacture of anodes containing				

Li+-conductive inorg. solid electrolytes and conductive fibers for secondary bipolar lithium batteries)

IT Battery anodes
Vehicles
(structure and manufacture of anodes containing Li+-conductive inorg. solid electrolytes and conductive fibers for secondary bipolar lithium batteries)

IT Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(structure and manufacture of anodes containing Li+-conductive inorg. solid electrolytes and conductive fibers for secondary bipolar lithium batteries)

IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); USES (Uses)
(hard; structure and manufacture of anodes containing Li+-conductive inorg. solid electrolytes and conductive fibers for secondary bipolar lithium batteries)

IT 12057-17-9, Lithium manganese oxide (LiMn2O4)
RL: DEV (Device component use); USES (Uses)
(structure and manufacture of anodes containing Li+-conductive inorg. solid electrolytes and conductive fibers for secondary bipolar lithium batteries)

IT 1344-28-1, Alumina, uses 227196-95-4, Indium lithium zirconium phosphate (In1.8Li2.8Zr0.2(PO4)3)
RL: MOA (Modifier or additive use); USES (Uses)
(structure and manufacture of anodes containing Li+-conductive inorg. solid electrolytes and conductive fibers for secondary bipolar lithium batteries)

AB The battery has a coating layer containing Li+-conductive inorg. solid electrolyte and conductive fibers on a cathode active mass and/or an anode active mass; and is manufactured by mech. depositing or bonding a coating material containing the solid electrolyte and the conductive fibers on electrode active mass particles. The group battery has several above bipolar batteries connected in parallel, in series, in series-parallel, or in parallel-series. The vehicle uses the above group battery.

L4 ANSWER 11 OF 27 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2006:340654 CAPLUS

DOCUMENT NUMBER: 144:394643

TITLE: Lithium anode with lithium mixed oxide protective coating for secondary lithium battery

INVENTOR(S): Ukaji, Masaya; Mino, Shinji; Shibano, Yasuyuki; Ito, Shuji

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokyo Koho, 19 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006100083	A	20060413	JP 2004-283846	20040929
PRIORITY APPLN. INFO.:			JP 2004-283846	20040929

TI Lithium anode with lithium mixed oxide protective coating for secondary lithium battery

IT Battery anodes

(anode having lithium mixed oxide protective coating with high water resistance and ion conductivity on pretreatment coating for Li

battery)

IT Coating materials
(water-resistant; anode having lithium mixed oxide protective coating with high water resistance and ion conductivity on pretreatment coating for Li battery)

IT Lithium alloy, base
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(anode base; anode having lithium mixed oxide protective coating with high water resistance and ion conductivity on pretreatment coating for Li battery)

IT 7439-93-2, Lithium, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(anode base; anode having lithium mixed oxide protective coating with high water resistance and ion conductivity on pretreatment coating for Li battery)

IT 10377-52-3, Lithium phosphate (Li3PO4) 14332-24-2
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(pretreatment coating; anode having lithium mixed oxide protective coating with high water resistance and ion conductivity on pretreatment coating for Li battery)

IT 782495-37-8, Lithium tungsten metaphosphate oxide (Li2.8W0.2(PO3)00.9)
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(protective coating, pretreatment coating; anode having lithium mixed oxide protective coating with high water resistance and ion conductivity on pretreatment coating for Li battery)

IT 782495-23-2, Lithium titanium metaphosphate oxide (Li2.8Ti0.2(PO3)00.9) 782495-24-3, Lithium vanadium metaphosphate oxide (Li2.8V0.2(PO3)00.9) 782495-25-4, Chromium lithium metaphosphate oxide (Cr0.2Li2.8(PO3)00.9) 782495-26-5, Lithium manganese metaphosphate oxide (Li2.8Mn0.2(PO3)00.9) 782495-27-6, Iron lithium metaphosphate oxide (Fe0.2Li2.8(PO3)00.9) 782495-28-7, Cobalt lithium metaphosphate oxide (Co0.2Li2.8(PO3)00.9) 782495-29-8, Lithium nickel metaphosphate oxide (Li2.8Ni0.2(PO3)00.9) 782495-30-1, Copper lithium metaphosphate oxide (Cu0.2Li2.8(PO3)00.9) 782495-31-2, Lithium zirconium metaphosphate oxide (Li2.8Zr0.2(PO3)00.9) 782495-32-3, Lithium niobium metaphosphate oxide (Li2.8Nb0.2(PO3)00.9) 782495-33-4, Lithium molybdenum metaphosphate oxide (Li2.8Mo0.2(PO3)00.9) 782495-34-5, Lithium ruthenium metaphosphate oxide (Li2.8Ru0.2(PO3)00.9) 782495-35-6, Lithium silver metaphosphate oxide (Li2.8Ag0.2(PO3)00.9) 782495-36-7, Lithium tantalum metaphosphate oxide (Li2.8Ta0.2(PO3)00.9) 782495-38-9, Lithium platinum metaphosphate oxide (Li2.8Pt0.2(PO3)00.9) 782495-39-0, Gold lithium metaphosphate oxide (Au0.2Li2.8(PO3)00.9) 782495-41-4, Lithium tungsten metaphosphate oxide (Li2.8W0.01(PO3)00.9) 782495-42-5, Lithium tungsten metaphosphate oxide (Li2.8W0.05(PO3)00.9) 782495-43-6, Lithium tungsten metaphosphate oxide (Li2.8W0.1(PO3)00.9) 782495-44-7, Lithium tungsten metaphosphate oxide (Li2.8W0.5(PO3)00.9) 782495-47-0, Lithium vanadium oxide phosphate (Li2.8V0.200.4(PO4)) 782495-48-1, Chromium lithium oxide phosphate (Cr0.2Li2.800.2(PO4)) 782495-49-2, Lithium manganese oxide phosphate (Li2.8Mn0.200.3(PO4)) 782495-50-5, Iron lithium oxide phosphate (Fe0.2Li2.800.17(PO4)) 782495-51-6, Cobalt lithium oxide phosphate (Co0.2Li2.800.17(PO4)) 782495-52-7, Lithium nickel oxide phosphate (Li2.8Ni0.200.1(PO4)) 782495-53-8, Copper lithium oxide phosphate (Cu0.2Li2.800.1(PO4)) 782495-54-9, Lithium zirconium oxide phosphate (Li2.8Zr0.200.3(PO4)) 782495-55-0, Lithium niobium oxide phosphate (Li2.8Nb0.200.4(PO4)) 782495-56-1, Lithium molybdenum

oxide phosphate (Li₂8Mo_{0.200.5}(PO₄)) 782495-57-2, Lithium silver phosphate (Li₂8Ag_{0.2}(PO₄)) 782495-58-3, Lithium tantalum oxide phosphate (Li₂8Ta_{0.200.4}(PO₄)) 782495-59-4, Lithium tungsten oxide phosphate (Li₂8W_{0.200.5}(PO₄)) 782495-60-7, Lithium titanium oxide phosphate (Li₄Ti_{0.250}(PO₄)) 782495-61-8, Lithium vanadium oxide phosphate (Li₃75V_{0.250}(PO₄)) 782495-62-9, Chromium lithium oxide phosphate (Cr_{0.25}Li_{3.50}(PO₄)) 782495-63-0, Lithium manganese oxide phosphate (Li₃25Mn_{0.250}(PO₄)) 782495-64-1, Lithium niobium oxide phosphate (Li₃75Nb_{0.250}(PO₄)) 782495-65-2, Lithium molybdenum oxide phosphate (Li₃5Mo_{0.250}(PO₄)) 782495-66-3, Lithium tantalum oxide phosphate (Li₃75Ta_{0.250}(PO₄)) 782495-67-4, Lithium tungsten oxide phosphate (Li₃5W_{0.250}(PO₄)) 782495-69-6, Lithium tungsten oxide phosphate (Li₃02W_{0.100.04}(PO₄)) 782495-70-9, Lithium tungsten oxide phosphate (Li₃2W_{0.100.4}(PO₄)) 782495-72-1, Lithium tungsten oxide phosphate (Li₃66W_{0.3301.32}(PO₄)) 782495-74-3, Lithium tungsten oxide phosphate (Li₅W_{0.4}(PO₄)) 816415-85-7, Boron lithium nitride oxide (BLi_{0.8}NO_{0.301.45}) 816416-34-9, Germanium lithium nitride oxide (GeLi_{1.8}NO_{0.302.45}) 816416-38-3, Aluminum lithium nitride oxide (ALi_{1.8}NO_{0.301.45}) 816416-40-7, Aluminum lithium nitride oxide (ALi_{1.4}8NO_{0.303.45}) 816416-42-9, Carbon lithium nitride oxide (CLi_{1.8}NO_{0.302.45}) 816416-44-1, Gallium lithium nitride oxide (GaLi_{0.8}NO_{0.301.45}) 816416-46-3, Lithium sulfur nitride oxide (Li_{1.8}SN_{0.303.45}) 816416-50-9, Boron lithium nitride oxide silicate (B_{0.5}Li_{2.3}NO_{0.300.45}(SiO₄)_{0.5}) 816416-52-1, Germanium lithium nitride oxide silicate (Ge_{0.5}Li_{3.8}NO_{0.301.45}(SiO₄)_{0.5}) 816416-54-3, Carbon lithium nitride oxide silicate (C_{0.5}Li_{2.8}NO_{0.302.95}(SiO₄)_{0.5}) 816416-56-5, Lithium silicon nitride oxide sulfate (Li₂8Si_{0.5}NO_{0.301.45}(SO₄)_{0.5}) 816416-58-7, Germanium lithium borate nitride oxide (Ge_{0.5}Li_{2.3}(BO₃)_{0.5}NO_{0.300.95}) 816416-60-1, Aluminum lithium borate nitride oxide (Al_{0.5}Li_{2.8}(BO₃)_{0.5}NO_{0.300.95}) 816416-62-3, Boron lithium carbonate nitride oxide (B_{0.5}Li_{1.3}(CO₃)_{0.5}NO_{0.300.45}) 816416-64-5, Gallium lithium borate nitride oxide (Ga_{0.5}Li_{0.8}(BO₂)_{0.5}NO_{0.300.45}) 816416-66-7, Boron lithium nitride oxide sulfate (B_{0.5}Li_{1.3}NO_{0.300.45}(SO₄)_{0.5}) 816416-68-9 816416-70-3, Germanium lithium nitride oxide sulfate (Ge_{0.5}Li_{2.8}NO_{0.301.45}(SO₄)_{0.5}) 816416-74-7, Carbon lithium nitride oxide sulfate (C_{0.5}Li_{1.8}NO_{0.300.95}(SO₄)_{0.5}) 882681-95-0, Lithium titanium oxide phosphate (Li₂8Ti_{0.200.3}(PO₄)) 882682-19-1, Lithium zirconium oxide phosphate (Li₄Zr_{0.250}(PO₄)) 882682-60-2, Aluminum gallium lithium nitride oxide (Al_{0.5}Ga_{0.5}Li_{2.8}NO_{0.303.45}) 882682-64-6, Lithium silicon nitride oxide (Li_{1.8}SiNO_{0.502.15}) 884739-67-7, Lithium silicon nitride oxide (Li_{1.8}SiNO_{0.302.45})

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (protective coating; anode having lithium mixed oxide
 protective coating with high water resistance and ion conductivity on
 pretreatment coating for Li battery)

- AB The anode comprises a Li or a Li alloy anode coated with (1) a pretreatment layer containing a Li ion conductive substance and (2) a protective layer comprising LixPTyOz (T = Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zr, Nb, Mo, Ru, Ag, Ta, W, Pt, and/or Au; x = 2.0-7.0; y = 0.01-1.0; z = 3.5-8.0) or LixMoYNz (M = Si, B, Ge, Al, C, Ga, and/or S; (a) x = 0.6-1.0, y = 1.05-1.99, z = 0.01-0.5, (b) x = 1.6-2.0, y = 2.05-2.99, z = 0.01-0.5, (c) x = 1.6-2.0, y = 3.05-3.99, z = 0.01-0.5, or (d) x = 4.6-5.0, y = 3.05-3.99, z = 0.01-0.5]. Secondary lithium battery equipped with the anode is also claimed. Since the protective layer has high stability to water and ion conductivity, deterioration of the anode is prevented, and the battery has excellent cycling performance.

DOCUMENT NUMBER: 144:216095
 TITLE: Lithium secondary batteries with enhanced safety and performance
 INVENTOR(S): Yong, Hyun-Hang; Lee, Sang-Young; Kim, Seok-Koo; Ahn, Soon-Ho; Suk, Jung-Don
 PATENT ASSIGNEE(S): LG Chem, Ltd., S. Korea
 SOURCE: PCT Int. Appl., 19 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006019245	A1	20060223	WO 2005-KR2666	20050816
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
CA 2574628	A1	20060223	CA 2005-2574628	20050816
CN 1930706	A	20070314	CN 2005-80007216	20050816
EP 1782493	A1	20070509	EP 2005-780529	20050816
R: DE, FR				
BR 2005008130	A	20070717	BR 2005-8130	20050816
JP 2007527603	T	20070927	JP 2007-502739	20050816
RU 2321924	C1	20080410	RU 2006-130367	20050816
KR 2006050508	A	20060519	KR 2005-75105	20050817
KR 805005	B1	20080220		
IN 2007KN00018	A	20070629	IN 2007-KN18	20070102
US 20080131781	A1	20080605	US 2007-573317	20070206
PRIORITY APPLN. INFO.:			KR 2004-64673	A 20040817
			WO 2005-KR2666	W 20050816
TI Lithium secondary batteries with enhanced safety and performance				
IT Phosphate glasses				
RL: MOA (Modifier or additive use); USES (Uses)				
(aluminum lithium titanium phosphate; lithium secondary batteries with enhanced safety and performance)				
IT Phosphate glasses				
RL: MOA (Modifier or additive use); USES (Uses)				
(germanium lithium thiophosphate; lithium secondary batteries with enhanced safety and performance)				
IT Particles				
(inorg.; lithium secondary batteries with enhanced safety and performance)				
IT Battery electrodes				
Safety				
(lithium secondary batteries with enhanced safety and performance)				
IT Secondary batteries				
(lithium; lithium secondary batteries with enhanced safety and performance)				
IT Sulfide glasses				
RL: MOA (Modifier or additive use); USES (Uses)				

(silicon sulfide; lithium secondary batteries with enhanced safety and performance)

IT 12190-79-3, Cobalt lithium oxide (CoLiO2)
 RL: DEV (Device component use); USES (Uses)
 (lithium secondary batteries with enhanced safety and performance)

IT 1314-80-3, Phosphorus pentasulfide 10377-52-3, Lithium phosphate
 13759-10-9, Silicon sulfide (SiS2) 30622-39-0, Lithium titanium
 phosphate LiTi2(P04)3 862809-42-5, Lithium titanium phosphate
 (LiO-2TiO-3(P04)3) 862809-44-7, Aluminum lithium titanium
 phosphate (AlO-1LiO-2TiO-3(P04)3) 862809-46-9, Lanthanum lithium
 titanium oxide (LaO-3LiO-2TiO3) 862809-50-5, Lithium nitride (LiO-4NO-2)
 RL: MOA (Modifier or additive use); USES (Uses)
 (lithium secondary batteries with enhanced safety and performance)

AB Disclosed is an electrode obtained from electrode slurry comprising: (a) an electrode active material capable of lithium intercalation/deintercalation; and (b) inorg. particles having lithium ion conductivity. An electrochem. device comprising the same electrode is also disclosed. The electrochem. device, using such inorg. particles having lithium ion conductivity added to electrode slurry, can show improved safety, while minimizing degradation in the quality caused by the use of additives.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 13 OF 27 CAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2005:823981 CAPLUS
 DOCUMENT NUMBER: 143:232673
 TITLE: Electrochemical device comprising organic/inorganic composite porous layer-coated electrode
 INVENTOR(S): Yong, Hyun-Hang; Lee, Sang-Young; Kim, Seok-Koo; Ahn, Soon-Ho
 PATENT ASSIGNEE(S): LG Chem, Ltd., S. Korea
 SOURCE: PCT Int. Appl., 53 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005076388	A1	20050818	WO 2005-KR358	20050205
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
KR 2006041649	A	20060512	KR 2005-9992	20050203
US 20050266150	A1	20051201	US 2005-51610	20050204
TW 253199	B	20060411	TW 2005-94103791	20050204
CA 2555747	A1	20050818	CA 2005-2555747	20050205
EP 1721348	A1	20061115	EP 2005-710859	20050205
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR				

CN 1918727	A	20070221	CN 2005-80004235	20050205
BR 2005006636	A	20070508	BR 2005-6636	20050205
JP 2007520867	T	20070726	JP 2006-552057	20050205
RU 2326468	C1	20080610	RU 2006-129310	20050205
IN 2006KN02374	A	20070525	IN 2006-KN2374	20060822
PRIORITY APPLN. INFO.:			KR 2004-8136	A 20040207
			KR 2004-8585	A 20040210
			WO 2005-KR358	W 20050205

TI Electrochemical device comprising organic/inorganic composite porous layer-coated electrode

IT Phosphate glasses
 RL: MOA (Modifier or additive use); USES (Uses)
 (aluminum lithium titanium; electrochem. device comprising organic/inorg. composite porous layer-coated electrode)

IT Porous materials
 (coatings; electrochem. device comprising organic/inorg. composite porous layer-coated electrode)

IT Battery anodes
 Battery cathodes
 Battery electrodes
 Dielectric constant
 Safety
 (electrochem. device comprising organic/inorg. composite porous layer-coated electrode)

IT Oxides (inorganic), uses
 Petroleum coke
 RL: DEV (Device component use); USES (Uses)
 (electrochem. device comprising organic/inorg. composite porous layer-coated electrode)

IT Fluoropolymers, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (electrochem. device comprising organic/inorg. composite porous layer-coated electrode)

IT Gelatins, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (electrochem. device comprising organic/inorg. composite porous layer-coated electrode)

IT Polymers, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (electrochem. device comprising organic/inorg. composite porous layer-coated electrode)

IT Polyoxalkylenes, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (electrochem. device comprising organic/inorg. composite porous layer-coated electrode)

IT Secondary batteries
 (lithium; electrochem. device comprising organic/inorg. composite porous layer-coated electrode)

IT Secondary battery separators
 (microporous, polymeric; electrochem. device comprising organic/inorg. composite porous layer-coated electrode)

IT Sulfide glasses
 RL: MOA (Modifier or additive use); USES (Uses)
 (phosphorus sulfide and silicon sulfide; electrochem. device comprising organic/inorg. composite porous layer-coated electrode)

IT Coating materials
 (porous; electrochem. device comprising organic/inorg. composite porous layer-coated electrode)

IT Lithium alloy, base
 RL: DEV (Device component use); USES (Uses)
 (electrochem. device comprising organic/inorg. composite porous layer-coated electrode)

- IT 236388-73-1, Lithium silicide sulfide 862809-52-7, Lithium phosphorus sulfide (LiO-3P0-3S0-7)
 RL: DEV (Device component use); USES (Uses)
 (electrochem. device comprising organic/inorg. composite porous layer-coated electrode)
- IT 10377-52-3, Lithium phosphate 30622-39-0, Lithium titanium phosphate (LiTi2(P04)3) 862809-42-5, Lithium titanium phosphate (LiO-2TiO-3(P04)3) 862809-44-7, Aluminum lithium titanium phosphate (AlO-1LiO-2TiO-3(P04)3) 862809-46-9, Lanthanum lithium titanium oxide (LaO-3LiO-2TiO3) 862809-48-1, Germanium lithium phosphorus sulfide (GeO-1LiO-4P0-1S0-5) 862809-50-5, Lithium nitride (LiO-4N0-2)
 RL: MOA (Modifier or additive use); USES (Uses)
 (electrochem. device comprising organic/inorg. composite porous layer-coated electrode)
- IT 57-50-1D, Sucrose, cyanoethyl ethers 109-78-4D, 2-Cyanoethanol, sucrose ethers 110-71-4, Glyme 1305-78-8, Calcia, uses 1306-38-3, Ceria, uses 1309-48-4, Magnesia, uses 1313-99-1, Nickel oxide (NiO), uses 1314-13-2, Zinc oxide (ZnO), uses 1314-23-4, Zirconia, uses 1314-36-9, Yttria, uses 1344-28-1, Alumina, uses 9000-11-7, Carboxymethyl cellulose 9002-86-2, Polyvinyl chloride 9003-20-7, Polyvinyl acetate 9003-39-8, Polyvinylpyrrolidone 9003-54-7, Acrylonitrile-styrene copolymer 9004-35-7, Cellulose acetate 9004-36-8, Cellulose acetate butyrate 9004-39-1, Cellulose acetate propionate 9004-41-5, Cyanoethyl cellulose 9011-14-7, PMMA 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer 9057-02-7, Pullulan 12047-27-7, Barium titanium oxide (BaTiO3), uses 12055-23-1, Hafnia 12060-59-2, Strontium titanium oxide (SrTiO3) 12626-81-2, PZT 12676-60-7, PLZT 13463-67-7, Titania, uses 18282-10-5, Tin dioxide 24937-78-8, Ethylene-vinyl acetate copolymer 24937-79-9, PVDF 24991-55-7, Polyethylene glycol dimethyl ether 25014-41-9, Polyacrylonitrile 25322-68-3 37452-25-8, Polyvinyl alcohol cyanoethyl ether 77466-56-9, Cyanoethylpullulan 87465-25-6, Trichloroethylene-vinylidene fluoride copolymer 430434-54-1, PMN-PT
 RL: TEM (Technical or engineered material use); USES (Uses)
 (electrochem. device comprising organic/inorg. composite porous layer-coated electrode)
- AB Disclosed is an electrode comprising a first organic/inorg. composite porous coating layer formed on its surface, wherein the first coating layer includes inorg. particles and a binder polymer for interconnecting and fixing the inorg. particles, and has micropores formed by interstitial vols. among the inorg. particles. An electrochem. device including the same electrode is also disclosed. Further, disclosed is a method for manufacturing an electrode having an organic/inorg. composite porous coating layer on the surface thereof, comprising the steps of: (a) coating a current collector with slurry containing an electrode active material and drying it to provide an electrode; and (b) coating the surface of electrode obtained from step (a) with a mixture of inorg. particles with a binder polymer. A lithium secondary battery including the electrode shows improved safety and minimized degradation in battery performance.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 14 OF 27 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2004:906086 CAPLUS

DOCUMENT NUMBER: 141:382165

TITLE: Solid electrolyte and total solid secondary battery containing the electrolyte

INVENTOR(S): Ugaji, Masaya; Mino, Shinji; Shibano, Yasuyuki; Ito, Shuji

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan

SOURCE: PCT Int. Appl., 41 pp.
 DOCUMENT TYPE: CODEN: PIXXD2
 LANGUAGE: Patent
 FAMILY ACC. NUM. COUNT: Japanese
 PATENT INFORMATION: 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004093236	A1	20041028	WO 2004-JP5424	20040415
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
JP 2004335455	A	20041125	JP 2004-119042	20040414
JP 3690684	B2	20050831		
EP 1630893	A1	20060301	EP 2004-727754	20040415
R: DE, FR, GB				
CN 1751409	A	20060322	CN 2004-80004511	20040415
CN 100337362	C	20070912		
US 20060216611	A1	20060928	US 2005-551935	20051004
US 7514181	B2	20090407		
PRIORITY APPLN. INFO.:			JP 2003-113850	A 20030418
			WO 2004-JP5424	W 20040415
TI	Solid electrolyte and total solid secondary battery containing the electrolyte			
IT	Battery electrolytes			
	Secondary batteries			
	(solid electrolytes containing lithium transition metal phosphorus oxides for secondary batteries)			
IT	782495-70-9, Lithium tungsten oxide phosphate (Li3.2W0.100.4(P04))			
	782495-72-1, Lithium tungsten oxide phosphate (Li3.66W0.3301.32(P04))			
	RL: DEV (Device component use); USES (Uses)			
	(solid electrolytes containing lithium transition metal phosphorus oxides for secondary batteries)			
IT	782495-67-4, Lithium tungsten oxide phosphate (Li3.5W0.250(P04))			
	RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)			
	(solid electrolytes containing lithium transition metal phosphorus oxides for secondary batteries)			
IT	12190-79-3, Cobalt lithium oxide (CoLiO2) 782495-23-2, Lithium titanium metaphosphate oxide (Li2.8Ti0.2(P03)00.9) 782495-24-3, Lithium vanadium metaphosphate oxide (Li2.8V0.2(P03)00.9) 782495-25-4, Chromium lithium metaphosphate oxide (Cr0.2Li2.8(P03)00.9) 782495-26-5, Lithium manganese metaphosphate oxide (Li2.8Mn0.2(P03)00.9) 782495-27-6, Iron lithium metaphosphate oxide (Fe0.2Li2.8(P03)00.9) 782495-28-7, Cobalt lithium metaphosphate oxide (Co0.2Li2.8(P03)00.9) 782495-29-8, Lithium nickel metaphosphate oxide (Li2.8Ni0.2(P03)00.9) 782495-30-1, Copper lithium metaphosphate oxide (Cu0.2Li2.8(P03)00.9) 782495-31-2, Lithium zirconium metaphosphate oxide (Li2.8Zr0.2(P03)00.9) 782495-32-3, Lithium niobium metaphosphate oxide (Li2.8Nb0.2(P03)00.9) 782495-33-4, Lithium molybdenum metaphosphate oxide (Li2.8Mo0.2(P03)00.9) 782495-34-5, Lithium ruthenium metaphosphate oxide (Li2.8Ru0.2(P03)00.9) 782495-35-6, Lithium silver			

metaphosphate oxide (Li₂.8Ag_{0.2}(PO₃)_{00.9}) 782495-36-7, Lithium tantalum metaphosphate oxide (Li₂.8Ta_{0.2}(PO₃)_{00.9}) 782495-37-8, Lithium tungsten metaphosphate oxide (Li₂.8W_{0.2}(PO₃)_{00.9}) 782495-38-9, Lithium platinum metaphosphate oxide (Li₂.8Pt_{0.2}(PO₃)_{00.9}) 782495-39-0, Gold lithium metaphosphate oxide (Au_{0.2}Li₂.8(PO₃)_{00.9}) 782495-40-3, Lithium metaphosphate oxide (Li₂.8(PO₃)_{00.9}) 782495-41-4, Lithium tungsten metaphosphate oxide (Li₂.8W_{0.01}(PO₃)_{00.9}) 782495-42-5, Lithium tungsten metaphosphate oxide (Li₂.8W_{0.05}(PO₃)_{00.9}) 782495-43-6, Lithium tungsten metaphosphate oxide (Li₂.8W_{0.1}(PO₃)_{00.9}) 782495-44-7, Lithium tungsten metaphosphate oxide (Li₂.8W_{0.5}(PO₃)_{00.9}) 782495-45-8, Lithium tungsten metaphosphate oxide (Li₂.8W_{0.52}(PO₃)_{00.9}) 782495-46-9, Lithium tungsten metaphosphate oxide (Li₂.8W_{0.6}(PO₃)_{00.9}) 782495-47-0, Lithium vanadium oxide phosphate (Li₂.8V_{0.200.4}(PO₄)) 782495-48-1, Chromium lithium oxide phosphate (Cr_{0.2}Li₂.800.2(PO₄)) 782495-49-2, Lithium manganese oxide phosphate (Li₂.8Mn_{0.200.3}(PO₄)) 782495-50-5, Iron lithium oxide phosphate (Fe_{0.2}Li₂.800.17(PO₄)) 782495-51-6, Cobalt lithium oxide phosphate (Co_{0.2}Li₂.800.17(PO₄)) 782495-52-7, Lithium nickel oxide phosphate (Li₂.8Ni_{0.200.1}(PO₄)) 782495-53-8, Copper lithium oxide phosphate (Cu_{0.2}Li₂.800.1(PO₄)) 782495-54-9, Lithium zirconium oxide phosphate (Li₂.8Zr_{0.200.3}(PO₄)) 782495-55-0, Lithium niobium oxide phosphate (Li₂.8Nb_{0.200.4}(PO₄)) 782495-56-1, Lithium molybdenum oxide phosphate (Li₂.8Mo_{0.200.5}(PO₄)) 782495-57-2, Lithium silver phosphate (Li₂.8Ag_{0.2}(PO₄)) 782495-58-3, Lithium tantalum oxide phosphate (Li₂.8Ta_{0.200.4}(PO₄)) 782495-59-4, Lithium tungsten oxide phosphate (Li₂.8W_{0.200.5}(PO₄)) 782495-60-7, Lithium titanium oxide phosphate (Li₄Ti_{0.250}(PO₄)) 782495-61-8, Lithium vanadium oxide phosphate (Li₃.75V_{0.250}(PO₄)) 782495-62-9, Chromium lithium oxide phosphate (Cr_{0.25}Li_{3.5}(PO₄)) 782495-63-0, Lithium manganese oxide phosphate (Li₃.25Mn_{0.250}(PO₄)) 782495-64-1, Lithium niobium oxide phosphate (Li₃.75Nb_{0.250}(PO₄)) 782495-65-2, Lithium molybdenum oxide phosphate (Li₃.5Mo_{0.250}(PO₄)) 782495-66-3, Lithium tantalum oxide phosphate (Li₃.75Ta_{0.250}(PO₄)) 782495-69-6, Lithium tungsten oxide phosphate (Li₃.02W_{0.0100.04}(PO₄)) 782495-74-3, Lithium tungsten oxide phosphate (Li₅W_{0.4}(PO₄)) 782495-76-5, Lithium tungsten oxide phosphate (Li₇W₂₀₈(PO₄))

RL: TEM (Technical or engineered material use); USES (Uses)
 (solid electrolytes containing lithium transition metal phosphorus oxides for secondary batteries)

AB The electrolyte, comprising Li, O, P and a transition metal element, is represented by Li_xSTyO_z (T = transition metal; x = 2-7; y = 0.01-1; and z = 3.5-8). The battery has the above electrolyte between a cathode and an anode.

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 15 OF 27 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2004:632469 CAPLUS

DOCUMENT NUMBER: 141:176832

TITLE: Nonaqueous electrolyte lithium ion secondary battery containing lithium-based composite metal oxide for improved discharge capacity and thermal stability

INVENTOR(S): Kubo, Koichi

PATENT ASSIGNEE(S): Toshiba Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004220801	A	20040805	JP 2003-3291	20030109
JP 3887317	B2	20070228		

PRIORITY APPLN. INFO.: JP 2003-3291 20030109

TI Nonaqueous electrolyte lithium ion secondary battery containing lithium-based composite metal oxide for improved discharge capacity and thermal stability

IT Secondary batteries
(lithium; pos. electrode of nonaq. electrolyte lithium ion secondary battery)

IT Battery electrodes
(pos. electrode of nonaq. electrolyte lithium ion secondary battery)

IT 530740-14-8, Molybdenum oxide phosphate (Mo2O3(PO4)2) 732298-51-0, Lithium molybdenum oxide phosphate (Li2MoO(PO4)) 732298-52-1, Lithium niobium oxide phosphate (Li2NbO(PO4)) 732298-53-2, Lithium tantalum oxide phosphate (Li2TaO(PO4)) 732298-54-3, Lithium tungsten oxide phosphate (Li2WO(PO4)) 732298-55-4, Iron lithium molybdenum oxide phosphate (Fe0.33Li2Mo0.67O(PO4)) 732298-56-5, Germanium lithium molybdenum oxide (GeLi2MoO5) 732298-58-7 732298-59-8, Iron lithium tantalum fluoride phosphate (Fe0.5Li2Ta0.5F(PO4)) 732298-60-1 732298-61-2 732298-62-3 732298-63-4, Lithium titanium oxide sulfate (Li2TiO(SO4)) 732298-64-5, Lithium titanium vanadium oxide sulfate (Li2Ti0.5V0.5O(SO4)) 732298-65-6, Lithium niobium vanadium oxide sulfate (Li2Nb0.5V0.5O(SO4)) 732298-66-7, Lithium molybdenum oxide phosphate (Li2MoO1.5(PO4)) 732298-67-8, Lithium titanium oxide phosphate (Li2TiO0.5(PO4)) 732298-68-9, Lithium tungsten oxide silicate (Li2WO(SiO4))

RL: DEV (Device component use); USES (Uses)
(pos. electrode of nonaq. electrolyte lithium ion secondary battery)

AB Disclosed is the nonaq. electrolyte lithium ion secondary battery comprising (a) a pos. electrode containing a metal oxide Li2-xM1-yM'yXzAO4 (M = Ti, Nb, etc.; M' = V, Cr, Mn, etc.; X = O, F; A = Si, Ge, P, S; 0 ≤ x ≤ 2; 0 ≤ y ≤ 0.5; and 0.5 ≤ z ≤ 1.5) having the tetragonal crystal structure, (b) a neg. electrode, and (c) a nonaq. electrolyte.

L4 ANSWER 16 OF 27 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2004:546642 CAPLUS

DOCUMENT NUMBER: 141:91814

TITLE: Method of preparation of battery electrode active material

INVENTOR(S): Adamson, George; Barker, Jeremy; Ceder, Gerbrand; Dong, Ming; Morgan, Dane; Saidi, Yazid M.

PATENT ASSIGNEE(S): Valence Technology, Inc., USA

SOURCE: PCT Int. Appl., 71 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004057691	A1	20040708	WO 2003-US40930	20031219

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,

	LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW	
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG	
CA	2455540	A1 20040619 CA 2003-2455540 20031219
US	20040131939	A1 20040708 US 2003-741257 20031219
AU	2003297466	A1 20040714 AU 2003-297466 20031219
EP	1500154	A1 20050126 EP 2003-793455 20031219
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK	
CN	1692510	A 20051102 CN 2003-80100192 20031219
CN	100334755	C 20070829
JP	2006511038	T 20060330 JP 2004-544174 20031219
US	20060083990	A1 20060420 US 2005-291298 20051201
PRIORITY APPLN. INFO.:		US 2002-435144P P 20021219 US 2003-741257 A3 20031219 WO 2003-US40930 W 20031219
TI	Method of preparation of battery electrode active material	
IT	Battery electrodes	
	Secondary batteries	
	(method of preparation of battery electrode active material)	
IT	714248-83-6P, Lithium vanadium phosphate (Li ₂ .99V ₂ (PO ₄) ₃) 714248-85-8P, Lithium vanadium phosphate (Li ₂ .98V ₂ (PO ₄) ₃) 714249-02-2P, Cobalt lithium phosphate (CoLi _{0.99} (PO ₄)) 714249-20-4P, Iron lithium phosphate (FeLi _{0.99} (PO ₄))	
	RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)	
	(Nb-doped; method of preparation of battery electrode active material)	
IT	714248-75-6P, Lithium manganese phosphate (Li _{0.98} Mn(PO ₄)) 714248-85-8P, Lithium vanadium phosphate (Li ₂ .98V ₂ (PO ₄) ₃) 714248-97-2P, Cobalt lithium phosphate (CoLi _{0.98} (PO ₄)) 714249-17-9P, Iron lithium phosphate (FeLi _{0.98} (PO ₄))	
	RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)	
	(Zr-doped; method of preparation of battery electrode active material)	
IT	15365-14-7P, Iron lithium phosphate FeLi(PO ₄) 554453-37-1P, Iron lithium zirconium phosphate 554453-39-3P, Iron lithium niobium phosphate 554453-42-8P, Iron lithium magnesium phosphate 714248-65-4P	
	714248-66-5P, Lithium manganese phosphate (Li _{0.99} Mn(PO ₄)) 714248-67-6P, Lithium manganese niobium phosphate (Li _{0.97} MnNb _{0.01} (PO ₄)) 714248-68-7P, Lithium manganese niobium phosphate (Li _{0.96} MnNb _{0.01} (PO ₄)) 714248-69-8P	
	714248-70-1P, Lithium magnesium manganese phosphate (Li _{0.98} Mg _{0.01} Mn(PO ₄)) 714248-71-2P, Lithium magnesium manganese phosphate (Li _{0.96} Mg _{0.02} Mn(PO ₄)) 714248-72-3P, Lithium magnesium manganese phosphate (Li _{0.94} Mg _{0.03} Mn(PO ₄)) 714248-73-4P, Lithium magnesium manganese phosphate (Li _{0.98} Mg _{0.05} Mn _{0.96} (PO ₄)) 714248-74-5P 714248-76-7P, Lithium manganese zirconium phosphate (Li _{0.96} MnZr _{0.01} (PO ₄)) 714248-77-8P	
	714248-79-0P, Lithium vanadium zirconium phosphate (Li ₂ .96V ₂ Zr _{0.01} (PO ₄) ₃) 714248-80-3P, Lithium vanadium zirconium phosphate (Li ₂ .9V ₂ Zr _{0.02} (PO ₄) ₃) 714248-81-4P, Lithium vanadium zirconium phosphate (Li ₂ .8V ₂ Zr _{0.05} (PO ₄) ₃) 714248-82-5P 714248-86-9P, Lithium niobium vanadium phosphate (Li ₂ .97Nb _{0.01} V ₂ (PO ₄) ₃) 714248-87-0P, Lithium niobium vanadium phosphate (Li ₂ .96Nb _{0.01} V ₂ (PO ₄) ₃) 714248-88-1P, Lithium niobium vanadium phosphate (Li ₂ .95Nb _{0.01} V ₂ (PO ₄) ₃) 714248-89-2P 714248-90-5P, Lithium magnesium vanadium phosphate (Li ₂ .98Mg _{0.01} V ₂ (PO ₄) ₃)	

714248-91-6P, Lithium magnesium vanadium phosphate (Li₂.94Mg0.03V2(P04)3)
 714248-93-8P, Lithium magnesium vanadium phosphate (Li₂.9Mg0.05V2(P04)3)
 714248-95-0P, Lithium magnesium vanadium phosphate (Li₂.8Mg0.1V2(P04)3)
 714248-96-1P 714248-99-4P, Cobalt lithium zirconium phosphate
 (CoLi0.96Zr0.01(P04)) 714249-00-0P 714249-04-4P, Cobalt lithium
 niobium phosphate (CoLi0.97Nb0.01(P04)) 714249-07-7P, Cobalt lithium
 niobium phosphate (CoLi0.96Nb0.01(P04)) 714249-08-8P 714249-10-2P,
 Cobalt lithium magnesium phosphate (CoLi0.98Mg0.01(P04)) 714249-11-3P,
 Cobalt lithium magnesium phosphate (CoLi0.96Mg0.02(P04)) 714249-13-5P,
 Cobalt lithium magnesium phosphate (CoLi0.94Mg0.03(P04)) 714249-15-7P,
 Cobalt lithium magnesium phosphate (Co0.86Li0.98Mg0.05(P04))
 714249-19-1P, Iron lithium zirconium phosphate (FeLi0.96Zr0.01(P04))
 714249-22-6P, Iron lithium niobium phosphate (FeLi0.97Nb0.01(P04))
 714249-23-7P, Iron lithium niobium phosphate (FeLi0.96Nb0.01(P04))
 714249-25-9P, Iron lithium magnesium phosphate (FeLi0.98Mg0.01(P04))
 714249-27-1P, Iron lithium magnesium phosphate (Fe0.96Li0.98Mg0.04(P04))
 714249-28-2P, Iron lithium magnesium phosphate (Fe0.96Li0.98Mg0.05(P04))
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP
 (Preparation); USES (Uses)
 (method of preparation of battery electrode active
 material)

AB The invention provides an electrochem. cell which includes a first
 electrode and a second electrode which is a counter
 electrode to the first electrode, and an electrolyte
 material interposed there between. The first electrode includes
 an alkali metal phosphorous compound doped with an element having a valence
 state greater than that of the alkali metal.

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 17 OF 27 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:97868 CAPLUS

DOCUMENT NUMBER: 138:140078

TITLE: Alkali/transition metal halo- and hydroxy-phosphates
 and related electrode active materials

INVENTOR(S): Barker, Jeremy; Saidi, M. Yazid; Swayer, Jeffrey L.

PATENT ASSIGNEE(S): Valence Technology Inc., UK

SOURCE: U.S. Pat. Appl. Publ., 22 pp., Cont.-in-part of U.S.
 6,387,568.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 5

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20030027049	A1	20030206	US 2001-14822	20011026
US 6777132	B2	20040817		
US 6387568	B1	20020514	US 2000-559861	20000427
AT 317157	T	20060215	AT 2001-916649	20010314
TW 503596	B	20020921	TW 2001-90109979	20010426
US 20030013019	A1	20030116	US 2001-45685	20011107
US 6964827	B2	20051115		
US 20020168573	A1	20021114	US 2002-133091	20020426
US 6855462	B2	20050215		
CA 2463872	A1	20030508	CA 2002-2463872	20021018
WO 2003038930	A2	20030508	WO 2002-US33510	20021018
WO 2003038930	A3	20040422		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,				

LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
 PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,
 UA, UG, US, UZ, VN, YU, ZA, ZM, ZW
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
 KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,
 FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF,
 CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
 AU 2002337911 A1 20030512 AU 2002-337911 20021018
 EP 1444744 A2 20040811 EP 2002-773814 20021018
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK
 CN 1659728 A 20050824 CN 2002-821019 20021018
 JP 2006516172 T 20060622 JP 2003-541083 20021018
 US 20040265695 A1 20041230 US 2004-870135 20040616
 US 7214448 B2 20070508
 US 20060014078 A1 20060119 US 2005-223082 20050909
 US 7270915 B2 20070918
 US 20070009800 A1 20070111 US 2006-531824 20060914
 US 7524584 B2 20090428
 US 20070190425 A1 20070816 US 2007-734678 20070412
 US 20080241043 A1 20081002 US 2008-135271 20080609
 US 2000-559861 A2 20000427
 US 2001-14822 A2 20011026
 US 2001-45685 A3 20011107
 WO 2002-US33510 W 20021018
 US 2004-870135 A2 20040616
 US 2007-734678 A2 20070412
 PRIORITY APPLN. INFO.:
 TI Alkali/transition metal halo- and hydroxy-phosphates and related
 electrode active materials
 IT Battery cathodes
 Hydrothermal reactions
 (alkali/transition metal halo- and hydroxy-phosphates and related
 electrode active materials)
 IT Chalcogenides
 Olivine-group minerals
 Oxides (inorganic), uses
 RL: DEV (Device component use); USES (Uses)
 (alkali/transition metal halo- and hydroxy-phosphates and related
 electrode active materials)
 IT Carbonaceous materials (technological products)
 RL: MOA (Modifier or additive use); USES (Uses)
 (alkali/transition metal halo- and hydroxy-phosphates and related
 electrode active materials)
 IT Reduction
 (carbothermal; alkali/transition metal halo- and hydroxy-phosphates and
 related electrode active materials)
 IT Phosphates, uses
 RL: DEV (Device component use); USES (Uses)
 (halide; alkali/transition metal halo- and hydroxy-phosphates and
 related electrode active materials)
 IT Secondary batteries
 (lithium; alkali/transition metal halo- and hydroxy-phosphates and
 related electrode active materials)
 IT Halides
 RL: DEV (Device component use); USES (Uses)
 (phosphates; alkali/transition metal halo- and hydroxy-phosphates and
 related electrode active materials)
 IT 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses 77641-62-4, Nasicon
 RL: DEV (Device component use); USES (Uses)
 (alkali/transition metal halo- and hydroxy-phosphates and related
 electrode active materials)
 IT 52934-02-8P, Cobalt lithium fluoride phosphate 52934-08-4P, Lithium

nickel fluoride phosphate 257892-19-6P, Sodium vanadium fluoride phosphate (Na₃V₂F₃(PO₄)₂) 477779-87-6P, Sodium vanadium fluoride phosphate NaVFP04 477779-89-8P, Lithium sodium vanadium fluoride phosphate (Li_{0.95}Na_{0.05}VF₂(PO₄)) 484039-84-1P, Cobalt lithium fluoride phosphate (CoLi₂F(PO₄)) 484039-86-3P, Iron lithium fluoride phosphate (FeLi₂F(PO₄)) 484039-88-5P 484039-91-0P, Lithium nickel fluoride phosphate (Li₂NiF(PO₄)) 484039-93-2P, Iron lithium fluoride phosphate 484039-95-4P, Lithium manganese fluoride phosphate (Li₂MnF(PO₄)) 484039-97-6P, Copper lithium fluoride phosphate (CuLi₂F(PO₄)) 484040-01-9P, Iron lithium magnesium fluoride phosphate (Fe_{0.9}Li_{1.25}Mg_{0.1}F_{0.25}(PO₄)) 484040-04-2P, Sodium vanadium fluoride phosphate (Na_{1.2}V_{1.2}F_{1.2}(PO₄)) 484040-06-4P, Chromium sodium fluoride phosphate 484040-08-6P, Manganese sodium fluoride phosphate (MnNaF(PO₄)) 484040-10-0P, Cobalt sodium fluoride phosphate (CoNaF(PO₄)) 484040-12-2P, Lithium sodium vanadium fluoride phosphate (Li_{0.1}Na_{0.9}VF(PO₄)) 484040-13-3P, Sodium vanadium hydroxide phosphate NaVOHPO4 484040-14-4P, Iron lithium fluoride phosphate (Fe₂Li₄F(PO₄)₃) 484040-15-5P, Lithium vanadium fluoride phosphate (Li₄V₂F(PO₄)₃) 484040-20-2P, Lithium manganese fluoride phosphate (Li₅Mn₂F₂(PO₄)₃) 484040-22-4P, Lithium vanadium fluoride phosphate (Li₆V₂F(PO₄)₃) 484040-25-7P, Chromium lithium sodium fluoride phosphate silicate (CrLiNa_{0.2}F(PO₄)_{0.8}(SiO₄)_{0.2}) 484040-27-9P 484040-28-0P 493025-03-9P, Lithium manganese fluoride phosphate 493025-04-0P, Copper lithium fluoride phosphate

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(alkali/transition metal halo- and hydroxy-phosphates and related electrode active materials)

AB An electroactive material comprises: AaMb(XY₄)cZd, wherein (a) A is selected from the group consisting of Li, Na, and/or K, and a = 0-8; (b) M is ≥ 1 metal, comprising ≥ 1 metal which is capable of undergoing oxidation to a higher valence state, and b = 1-3; (c) XY₄ is selected from the group consisting of X'O₄-xY'_x, X'O₄-yY'_{2y}, X''S₄, and mixts. thereof, where X' is P, As, Sb, Si, and/or Ge; X'' is P, As, Sb, Si, and/or Ge; Y' is halogen, x = 0-3; and y = 0-4; and c = 0-3; (d) Z is OH and/or halogen, d = 0-6; and wherein M, X, Y, Z, a, b, c, d, x, and y are selected so as to maintain the electroneutrality of the compound. Preferred embodiments include those having where c=1, those where c=2, and those where c=3. Preferred embodiments include those where a ≤ 1 and c=1, those where a=2 and c=1, and those where a ≥ 3 and c=3. This invention also provides electrodes comprising an electrode active material of this invention, and batteries that comprise a first electrode having an electrode active material of this invention; a second electrode having a compatible active material; and an electrolyte.

REFERENCE COUNT: 134 THERE ARE 134 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 18 OF 27 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:42884 CAPLUS

DOCUMENT NUMBER: 138:92874

TITLE: Alkali/transition metal halo- and hydroxy-phosphates and related electrode active materials

INVENTOR(S): Barker, Jeremy; Saidi, M. Yazid; Swoyer, Jeffery L.

PATENT ASSIGNEE(S): Valence Technology, Inc., USA

SOURCE: U.S. Pat. Appl. Publ., 22 pp., Cont.--in-part of U. S. 6,387,568.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 5

PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	US 20030013019	A1	20030116	US 2001-45685	20011107
	US 6964827	B2	20051115		
	US 6387568	B1	20020514	US 2000-559861	20000427
	US 20030027049	A1	20030206	US 2001-14822	20011026
	US 6777132	B2	20040817		
	US 20050142056	A1	20050630	US 2005-905649	20050114
	US 7261977	B2	20070828		
	US 20060014078	A1	20060119	US 2005-223082	20050909
	US 7270915	B2	20070918		
PRIORITY APPLN. INFO.:				US 2000-559861	A2 20000427
				US 2001-14822	A2 20011026
				US 2001-45685	A1 20011107
				US 2002-133091	A1 20020426
TI	Alkali/transition metal halo- and hydroxy-phosphates and related electrode active materials				
IT	Battery cathodes				
	NASICONs				
	(alkali/transition metal halo- and hydroxy-phosphates and related electrode active materials)				
IT	Carbonaceous materials (technological products)				
	Oxides (inorganic), uses				
	RL: DEV (Device component use); USES (Uses)				
	(alkali/transition metal halo- and hydroxy-phosphates and related electrode active materials)				
IT	Secondary batteries				
	(lithium; alkali/transition metal halo- and hydroxy-phosphates and related electrode active materials)				
IT	Chalcogenides				
	RL: DEV (Device component use); USES (Uses)				
	(metal; alkali/transition metal halo- and hydroxy-phosphates and related electrode active materials)				
IT	7440-44-0, Carbon, uses 7782-42-5, Graphite, uses 484039-84-1, Cobalt lithium fluoride phosphate (CoLi2F(PO4)) 484039-86-3, Iron lithium fluoride phosphate (FeLi2F(PO4)) 484039-88-5				
	RL: DEV (Device component use); USES (Uses)				
	(alkali/transition metal halo- and hydroxy-phosphates and related electrode active materials)				
IT	52934-02-8P, Cobalt lithium fluoride phosphate 477779-87-6P, Sodium vanadium fluoride phosphate NaVFP04 484039-91-0P, Lithium nickel fluoride phosphate (Li2NiF(PO4)) 484039-93-2P, Iron lithium fluoride phosphate 484039-95-4P, Lithium manganese fluoride phosphate (Li2MnF(PO4)) 484039-97-6P, Copper lithium fluoride phosphate (CuLi2F(PO4)) 484040-01-9P 484040-04-2P, Sodium vanadium fluoride phosphate (Na1.2VF1.2(PO4)) 484040-06-4P, Chromium sodium fluoride phosphate 484040-08-6P, Manganese sodium fluoride phosphate (MnNaF(PO4)) 484040-10-0P, Cobalt sodium fluoride phosphate (CoNaF(PO4)) 484040-12-2P 484040-13-3P, Sodium vanadium hydroxide phosphate (NaV(OH)(PO4)) 484040-14-4P, Iron lithium fluoride phosphate (Fe2Li4F(PO4)3) 484040-15-5P, Lithium vanadium fluoride phosphate (Li4V2F(PO4)3) 484040-20-2P, Lithium manganese fluoride phosphate (Li5Mn2F2(PO4)3) 484040-22-4P, Lithium vanadium fluoride phosphate (Li6V2F(PO4)3) 484040-25-7P 484040-27-9P 484040-28-0P				
	RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)				
	(alkali/transition metal halo- and hydroxy-phosphates and related electrode active materials)				
AB	Electrode active materials comprise lithium or other alkali metals, a transition metal, a phosphate or similar moiety, and a halogen				

or hydroxyl moiety. Such electrode actives include those of the formula: AaMb(XY4)cZd wherein (a) A is selected from the group consisting of Li, Na, K, and mixts. thereof, and $0 < a \leq 6$; (b) M comprises one or more metals, comprising at least one metal which is capable of undergoing oxidation to a higher valence state, and $1 \leq b \leq 3$; (c) XY4 is selected from the group consisting of X'O4-xY'Xx, X'O4-yY'2y, X''S4, and mixts. thereof, where X' is P, As, Sb, Si, Ge, S, and mixts. thereof; X'' is P, As, Sb, Si, Ge and mixts. thereof; Y' is halogen; $0 \leq x < 3$; and $0 < y < 4$; and $0 < c \leq 3$; (d) Z is OH, halogen, or mixts. thereof, and $0 < d \leq 6$; and wherein M, X, Y, Z, a, b, c, d, x and y are selected so as to maintain electroneutrality of the compound. In a preferred embodiment, M comprises two or more transition metals from Groups 4 to 11 of the Periodic Table. In another preferred embodiment, M comprises M'-1-mM''m, where M' is at least one transition metal from Groups 4 to 11 of the Periodic Table; M'' is at least one element from Groups 2, 3, 12, 13, or 14 of the Periodic Table, and $0 < m < 1$. Preferred embodiments include those having where $c=1$, those where $c=2$, and those where $c=3$. Preferred embodiments include those where $a \leq 1$ and $c=1$, those where $a=2$ and $c=1$, and those where $a \geq 3$ and $c=3$. This invention also provides electrodes comprising an electrode active material of this invention, and batteries that comprise a first electrode having an electrode active material of this invention; a second electrode having a compatible active material; and an electrolyte.

REFERENCE COUNT: 127 THERE ARE 127 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 19 OF 27 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2002:256645 CAPLUS

DOCUMENT NUMBER: 136:297382

TITLE: Carbon-coated or carbon-crosslinked redox materials with transition metal-lithium oxide core for use as battery electrodes

INVENTOR(S): Armand, Michel; Gauthier, Michel; Magnan, Jean-Francois; Ravet, Nathalie

PATENT ASSIGNEE(S): Hydro-Quebec, Can.

SOURCE: PCT Int. Appl., 78 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: French

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002027824	A1	20020404	WO 2001-CA1350	20010921
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2320661	A1	20020326	CA 2000-2320661	20000926
CA 2423129	A1	20020404	CA 2001-2423129	20010921
AU 2001093569	A	20020408	AU 2001-93569	20010921
EP 1325526	A1	20030709	EP 2001-973907	20010921
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				

JP 2004509058	T	20040325	JP 2002-531518	20010921
CN 100421289	C	20080924	CN 2001-816319	20010921
US 20040086445	A1	20040506	US 2003-362764	20030619
US 7285260	B2	20071023		
US 20070134554	A1	20070614	US 2007-655084	20070119
US 7457018	B2	20081125		

PRIORITY APPLN. INFO.:

CA 2000-2320661	A	20000926
WO 2001-CA1350	W	20010921
US 2003-362764	A1	20030619

TI Carbon-coated or carbon-crosslinked redox materials with transition metal-lithium oxide core for use as battery electrodes

IT Silanes

RL: RCT (Reactant); RACT (Reactant or reagent)
(alkoxy, silicon source; carbon-coated or carbon-crosslinked redox materials with transition metal-lithium oxide core for use as battery electrodes)

IT Polyoxyaldehydes, uses

RL: NUU (Other use, unclassified); USES (Uses)
(alkyl ethers, oligomeric, aprotic solvent; carbon-coated or carbon-crosslinked redox materials with transition metal-lithium oxide core for use as battery electrodes)

IT Fluoropolymers, uses

Polyesters, uses

Polyethers, uses

RL: NUU (Other use, unclassified); USES (Uses)
(binders; carbon-coated or carbon-crosslinked redox materials with transition metal-lithium oxide core for use as battery electrodes)

IT Battery cathodes

Battery electrodes

Redox agents

(carbon-coated or carbon-crosslinked redox materials with transition metal-lithium oxide core for use as battery electrodes)

IT Transition metals, uses

RL: TEM (Technical or engineered material use); USES (Uses)
(electrodes containing; carbon-coated or carbon-crosslinked redox materials with transition metal-lithium oxide core for use as battery electrodes)

IT 78-93-3, Methyl ethyl ketone, uses 96-48-0, Butyrolactone 96-49-1, Ethylene carbonate 107-21-1D, Ethylene glycol, alkyl ethers 108-32-7, Propylene carbonate 111-46-6D, Diethylene glycol, alkyl ethers 112-27-6D, Triethylene glycol, alkyl ethers 112-60-7D, Tetraethylene glycol, alkyl ethers 463-79-6D, Carbonic acid, C1-4-alkyl esters

RL: NUU (Other use, unclassified); USES (Uses)
(aprotic solvent; carbon-coated or carbon-crosslinked redox materials with transition metal-lithium oxide core for use as battery electrodes)

IT 9011-14-7, Poly(methyl methacrylate) 24937-79-9, Poly(vinylidene difluoride) 25014-41-9, Polyacrylonitrile

RL: NUU (Other use, unclassified); USES (Uses)
(binders; carbon-coated or carbon-crosslinked redox materials with transition metal-lithium oxide core for use as battery electrodes)

IT 50-99-7, Glucose, reactions 57-48-7, Fructose, reactions 57-50-1, Sucrose, reactions 58-86-6, Xylose, reactions 87-79-6, Sorbose 9002-88-4, Polyethylene 9003-07-0, Polypropylene 9004-34-6, Cellulose, reactions 9004-34-6D, Cellulose, esters 9004-35-7, Cellulose acetate 9005-25-8, Starch, reactions 25212-86-6, Poly(furfuryl alcohol) 43094-71-9, Ethylene-ethylene oxide copolymer

RL: RCT (Reactant); RACT (Reactant or reagent)
(carbon source; carbon-coated or carbon-crosslinked redox materials

with transition metal-lithium oxide core for use as battery electrodes)

IT 407640-63-5, Iron lithium titanium phosphate sulfate (Fe_{0.85}Li_{1.35}Ti_{0.15}(PO₄)_{0.5}(SO₄))
 RL: DEV (Device component use); USES (Uses)
 (electrodes containing; carbon-coated or carbon-crosslinked redox materials with transition metal-lithium oxide core for use as battery electrodes)

IT 7439-89-6D, Iron, mixed oxides 7439-96-5D, Manganese, mixed oxides 7440-02-0D, Nickel, mixed oxides 7440-32-6D, Titanium, mixed oxides 7440-47-3D, Chromium, mixed oxides 7440-48-4D, Cobalt, mixed oxides 7440-50-8D, Copper, mixed oxides 7440-62-2D, Vanadium, mixed oxides 13816-45-0, Triphylite 15365-14-7, Iron lithium phosphate (FeLiPO₄) 213467-46-0, Iron lithium manganese phosphate (FeLi₂Mn(PO₄)₂)
 RL: TEM (Technical or engineered material use); USES (Uses)
 (electrodes containing; carbon-coated or carbon-crosslinked redox materials with transition metal-lithium oxide core for use as battery electrodes)

IT 90076-65-6
 RL: NUU (Other use, unclassified); USES (Uses)
 (electrolyte containing; carbon-coated or carbon-crosslinked redox materials with transition metal-lithium oxide core for use as battery electrodes)

IT 516-03-0, Ferrous oxalate
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (iron source; carbon-coated or carbon-crosslinked redox materials with transition metal-lithium oxide core for use as battery electrodes)

IT 7429-90-5, Aluminum, uses 7440-31-5, Tin, uses 7440-36-0, Antimony, uses 7440-66-6, Zinc, uses 7782-42-5, Graphite, uses 39302-37-9, Lithium titanate 207803-50-7, Aluminum cobalt lithium magnesium nickel oxide 258511-24-9, Iron lithium nitride 263898-18-6, Cobalt manganese nitride 407640-62-4
 RL: DEV (Device component use); USES (Uses)
 (lithium-based cathodes containing; carbon-coated or carbon-crosslinked redox materials with transition metal-lithium oxide core for use as battery electrodes)

IT 638-38-0, Manganese(II) acetate
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (manganese source; carbon-coated or carbon-crosslinked redox materials with transition metal-lithium oxide core for use as battery electrodes)

IT 546-89-4, Lithium acetate 553-91-3, Lithium oxalate 554-13-2, Lithium carbonate 1309-37-1, Ferric oxide, reactions 1310-65-2, Lithium hydroxide 1313-13-9, Manganese dioxide, reactions 1314-62-1, Vanadium pentoxide, reactions 1317-61-9, Magnetite, reactions 10045-86-0, Ferric phosphate 10102-24-6, Lithium silicate (Li₂SiO₃) 10377-48-7, Lithium sulfate 10377-52-3, Lithium phosphate (Li₃PO₄) 10421-48-4, Ferric nitrate 12057-24-8, Lithium oxide, reactions 12627-14-4 13453-80-0, Lithium dihydrogen phosphate 63985-45-5, Lithium orthosilicate 407640-52-2, Iron lithium manganese phosphate (Fe_{0.1}-1LiMn₀-0.9(PO₄)) 407640-53-3, Iron lithium magnesium phosphate (Fe_{0.7}-1LiMg₀-0.3(PO₄)) 407640-54-4, Calcium iron lithium phosphate (Ca₀-0.3Fe_{0.7}-1Li(PO₄)) 407640-55-5 407640-56-6, Iron lithium phosphate silicate (FeLi₁-1.9(PO₄)_{0.1}-1(SiO₄)₀-0.9) 407640-57-7 407640-58-8, Iron lithium manganese phosphate sulfate (Fe₀-1Li₁-1.2Mn₀-0.2((PO₄),(SO₄))) 407640-59-9, Iron lithium manganese phosphate ((Fe,Mn)Li₁-1.6(PO₄)) 407640-60-2, Iron lithium manganese phosphate sulfate (Fe₁-2Li₁-2Mn₀-1((PO₄),(SO₄))) 407640-61-3, Iron lithium titanium phosphate ((Fe,Ti)Li_{0.5}-2(PO₄)_{1.5})
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (metal source; carbon-coated or carbon-crosslinked redox materials with

transition metal-lithium oxide core for use as battery electrodes)

IT 25322-68-3D, Polyethylene glycol, alkyl ethers
 RL: NUU (Other use, unclassified); USES (Uses)
 (oligomeric, aprotic solvent; carbon-coated or carbon-crosslinked redox materials with transition metal-lithium oxide core for use as battery electrodes)

IT 7664-38-2, Phosphoric acid, reactions 7664-38-2D, Phosphoric acid, esters 7783-28-0, Ammonium hydrogen phosphate 10124-54-6, Manganese phosphate
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (phosphorus source; carbon-coated or carbon-crosslinked redox materials with transition metal-lithium oxide core for use as battery electrodes)

IT 7631-86-9, Silica, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (silicon source; carbon-coated or carbon-crosslinked redox materials with transition metal-lithium oxide core for use as battery electrodes)

IT 7664-93-9, Sulfuric acid, reactions 7783-20-2, Ammonium sulfate, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (sulfur source; carbon-coated or carbon-crosslinked redox materials with transition metal-lithium oxide core for use as battery electrodes)

AB Carbon-coated redox materials suitable for use in battery electrodes consist of a core surrounded by a coating, or interconnected by carbon crosslinks, in which the core includes a composition of formula $\text{Li}_x\text{M}_1\text{-yM}'_y(\text{XO}_4)_n$, in which $y = 0-0.6$, $x = 0-2$, $n = 0-1.5$; M is a transition metal; and M' is a element of fixed valence selected from Mg^{2+} , Ca^{2+} , Al^{3+} , and Zn^{2+} , and X is S, P, and Si. Synthesis of the materials is carried out by reacting a balanced mixture of appropriate precursors in a reducing atmospheric, to adjust the valence of the transition metals, in the presence of a carbon source, which is then pyrolyzed. The resulting products exhibit an excellent elec. conductivity and a highly enhanced

chemical activity.

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 20 OF 27 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2001:414793 CAPLUS

DOCUMENT NUMBER: 135:35187

TITLE: Batteries comprising solid electrolytes sandwiched in between spinel-type lithium manganate cathodes and spinel-type lithium titanate anodes

INVENTOR(S): Hara, Toru; Kitahara, Nobuyuki; Uemura, Toshihiko; Mishima, Hiromitsu; Magome, Shinji; Osaki, Makoto; Higuchi, Hisashi

PATENT ASSIGNEE(S): Kyocera Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001155763	A	20010608	JP 1999-336715	19991126
PRIORITY APPLN. INFO.:			JP 1999-336715	19991126

TI Batteries comprising solid electrolytes sandwiched in between spinel-type lithium manganate cathodes and spinel-type lithium titanate anodes

IT Battery anodes
Battery cathodes
Battery electrolytes
Solid state secondary batteries
(batteries comprising lithium titanium phosphate silicate electrolytes showing low surface resistances with lithium spinel oxide electrodes for use in personal digital assistances)

IT 123921-35-7, Lithium titanium oxide (Li1.33Ti1.67O4) 343950-34-5, Lithium titanium oxide (Li1.25-1.4Ti1.6-1.75O4)
RL: DEV (Device component use); USES (Uses)
(anode; batteries comprising lithium titanium phosphate silicate electrolytes showing low surface resistances with lithium spinel oxide electrodes for use in personal digital assistances)

IT 343950-44-7
RL: DEV (Device component use); USES (Uses)
(cathode-side electrolyte; batteries comprising lithium titanium phosphate silicate electrolytes showing low surface resistances with lithium spinel oxide electrodes for use in personal digital assistances)

IT 155472-68-7, Lithium manganese oxide (Li1.1Mn1.9O4) 335638-14-7, Lithium manganese oxide (Li1.05-1.2Mn1.8-1.95O4) 343950-32-3, Lithium manganese nickel oxide (Li1-1.2Mn0.4-0.6Ni0.2-0.6O4)
RL: DEV (Device component use); USES (Uses)
(cathode; batteries comprising lithium titanium phosphate silicate electrolytes showing low surface resistances with lithium spinel oxide electrodes for use in personal digital assistances)

IT 12031-82-2, Lithium titanium oxide (Li2TiO3)
RL: DEV (Device component use); USES (Uses)
(electrolyte on anode side containing; batteries comprising lithium titanium phosphate silicate electrolytes showing low surface resistances with lithium spinel oxide electrodes for use in personal digital assistances)

IT 12163-00-7, Lithium manganese oxide (Li2MnO3)
RL: DEV (Device component use); USES (Uses)
(electrolyte on cathode side containing; batteries comprising lithium titanium phosphate silicate electrolytes showing low surface resistances with lithium spinel oxide electrodes for use in personal digital assistances)

IT 343950-37-8 343950-39-0 343950-42-5
RL: DEV (Device component use); USES (Uses)
(electrolyte; batteries comprising lithium titanium phosphate silicate electrolytes showing low surface resistances with lithium spinel oxide electrodes for use in personal digital assistances)

AB The batteries comprise solid electrolytes of (A) sintered materials of Li2MnO3 and Li1+xMxTi2-xSi yP3-yO12 (I; M = Al or Ga; x = 0-0.4; 0 < y ≤ 0.6) on the cathode side and (B) sintered materials of Li2TiO3 and I on the anode side, sandwiched in between the electrodes and placed in an outer package. Such batteries with cathodes consisting of Li1+xMn2-xO4 (x = 0.05-0.2) or Li1+xNi yMn2-x-yO4 (x = 0-0.2; 0.4 ≤ y < 0.6) and anodes consisting of Li1+xTi2-xO4 (x = 0.25-0.40) are also claimed. Batteries with low surface resistance between the electrodes and the electrolytes are obtained. The batteries are suitable for use in personal digital assistance.

ACCESSION NUMBER: 2001:179635 CAPLUS
 DOCUMENT NUMBER: 134:210518
 TITLE: Process for large scale fabrication of lithium polymer batteries with solid electrolytes in the film technology
 INVENTOR(S): Meislitz, Karl Heinz
 PATENT ASSIGNEE(S): Bangert, Wolfgang, Germany; Sebastian, Rudolf
 SOURCE: Ger. Offen., 12 pp.
 CODEN: GWXXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	DE 19941861	A1	20010315	DE 1999-19941861	19990902
PRIORITY APPLN. INFO.:				DE 1999-19941861	19990902
TI	Process for large scale fabrication of lithium polymer batteries with solid electrolytes in the film technology				
IT	Polyurethanes, uses RL: TEM (Technical or engineered material use); USES (Uses) (acrylates, coatings; process for large scale fabrication of lithium polymer batteries with solid electrolytes in film technol.)				
IT	Secondary batteries (lithium; process for large scale fabrication of lithium polymer batteries with solid electrolytes in film technol.)				
IT	Battery anodes Battery cathodes Films (process for large scale fabrication of lithium polymer batteries with solid electrolytes in film technol.)				
IT	Fluoropolymers, uses Polyoxalkylenes, uses RL: DEV (Device component use); USES (Uses) (process for large scale fabrication of lithium polymer batteries with solid electrolytes in film technol.)				
IT	7440-44-0, Carbon, uses RL: MOA (Modifier or additive use); USES (Uses) (amorphous; process for large scale fabrication of lithium polymer batteries with solid electrolytes in film technol.)				
IT	7440-50-8, Copper, uses RL: DEV (Device component use); USES (Uses) (film, current collector; process for large scale fabrication of lithium polymer batteries with solid electrolytes in film technol.)				
IT	84-74-2, Dibutyl phthalate 117-84-0, Diethyl phthalate RL: DEV (Device component use); USES (Uses) (plasticizer; process for large scale fabrication of lithium polymer batteries with solid electrolytes in film technol.)				
IT	9002-86-2, Polyvinyl chloride 9003-53-6, Polystyrene 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer 11099-11-9, Vanadium oxide 12031-65-1, Lithium nickel oxide linio2 12057-17-9, Lithium manganese oxide limn2o4 12190-79-3, Cobalt lithium oxide colio2 24937-79-9, Polyvinylidene fluoride 25322-68-3, Peo 131344-56-4, Cobalt lithium nickel oxide RL: DEV (Device component use); USES (Uses) (process for large scale fabrication of lithium polymer batteries with solid electrolytes in film technol.)				
IT	7447-41-8, Lithium chloride, uses 7550-35-8, Lithium bromide 7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide 14283-07-9, Lithium tetrafluoroborate 30622-39-0, Lithium titanium phosphate				

LiTi2(PO4)3 120479-61-0, Aluminum lithium titanium phosphate
Al0.3Li1.3Ti1.7(PO4)3 138728-82-2, Lithium phosphate silicate
(Li3.5(PO4)0.5(SiO4)0.5) 180728-17-0, Aluminum lithium oxide silicate
(AlLi9O4(SiO4)) 328899-26-9, Lithium titanium oxide phosphate
(Li3Ti2O(PO4)3)

RL: DEV (Device component use); MOA (Modifier or additive use); USES
(Uses)

(process for large scale fabrication of lithium polymer
batteries with solid electrolytes in film technol.)

IT 7782-42-5, Graphite, uses

RL: MOA (Modifier or additive use); USES (Uses)

(process for large scale fabrication of lithium polymer
batteries with solid electrolytes in film technol.)

IT 67-64-1, Acetone, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(process for large scale fabrication of lithium polymer
batteries with solid electrolytes in film technol.)

AB Films for cathodes and anodes as well as for the electrolytes

are pulled from pastes of suitable composition and preparation Cathode pastes

are

prepared from: 3-10% polymer or copolymer, PEO, polystyrene, polyvinyl
chloride, polyvinylidene fluoride, or polyvinylidene
fluoride-hexafluoropropylene copolymer (PVDF-HFP); 4-12% plasticizer
(e.g., dibutylphthalate or dioctyl phthalate); 20-60 g% intercalation
material (e.g., LiCoO2, LiNiO2, LiCoxNil-xO2, LiMn2O4 or VOx); 2-10% elec.
conductor (e.g., graphite powder or amorphous C); and 40-80% solvent
(e.g., acetone). Anode paste comprises: 3-10% polymer or
copolymer (e.g., PEO, polystyrene, PVC, PVDF, or PVDF-HFP copolymer),
4-12% plasticizer (di-Bu phthalate or dioctyl phthalate), 20-40% elec.
conductor (graphite powder or amorphous C), and 40-80% solvent (acetone).
The electrolyte paste comprises: 3-10 g% polymer or copolymer (PEO,
polystyrene, PVC, PVDF or hexafluoropropylene-vinylidene fluoride
copolymer), 4-12% plasticizer (DBP or DOP), 20-40% ionic conductor
(Li9AlSiO8, Li1.3Al0.3Ti1.7(PO4)3, LiTi2(PO4)3, Li2O or Li4SiO4.Li3PO4),
2-10% ionic conductor (LiClO4, LiBF4, LiCl, LiBr, or LiI) and 40-80 g%
solvent (acetone).

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 22 OF 27 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2000:197818 CAPLUS

DOCUMENT NUMBER: 132:224820

TITLE: Lithium vanadium phosphate composite compound and its
use as positive electrode for lithium ion
secondary battery

INVENTOR(S): Sato, Mineo; Toda, Kenji; Imanaka, Nobuto

PATENT ASSIGNEE(S): Osaka University, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000086215	A	20000328	JP 1998-261930	19980916
JP 2949229	B2	19990913		

PRIORITY APPLN. INFO.: JP 1998-261930 19980916

TI Lithium vanadium phosphate composite compound and its use as positive
electrode for lithium ion secondary battery

IT Battery electrodes

(lithium vanadium phosphate composite compound and its use as pos. electrode for lithium ion secondary battery)

IT 261515-93-9, Aluminum lithium vanadium phosphate (Al₁₀-0.2Li₃V_{0.8}-1(P₀₄)₃) 261515-94-0, Lithium titanium vanadium phosphate (Li_{2.6}-3Ti₀-0.2V_{0.8}-1(P₀₄)₃) 261515-95-1, Lithium vanadium zirconium phosphate (Li_{2.6}-3V_{0.8}-1Zr₀-0.2(P₀₄)₃)

RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(lithium vanadium phosphate composite compound and its use as pos. electrode for lithium ion secondary battery)

AB Lithium vanadium phosphate composite compds. have the following formula Li_y(V_{1-x}M_x)₂(P₀₄)₃ where M is selected from aluminum, titanium and zirconium, 0<x≤0.2, and y is 3 when M is aluminum and or y is 3-2x when M is titanium or zirconium. The composite compound which possesses excellent charge-discharge behavior can be used as the pos. electrode for the lithium ion secondary battery.

L4 ANSWER 23 OF 27 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2000:15552 CAPLUS

DOCUMENT NUMBER: 132:52431

TITLE: Method of preparation of lithium-containing silicophosphates for electrode active material of lithium batteries

INVENTOR(S): Barker, Jeremy

PATENT ASSIGNEE(S): Valence Technology, Inc., USA

SOURCE: PCT Int. Appl., 46 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000001024	A1	20000106	WO 1999-US11217	19990520
W:	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW			
RW:	GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
US 6136472	A	20001024	US 1998-105748	19980626
CA 2333577	A1	20000106	CA 1999-2333577	19990520
AU 9940918	A	20000117	AU 1999-40918	19990520
EP 1090435	A1	20010411	EP 1999-924410	19990520
EP 1090435	B1	20040804		
R:	DE, ES, FR, GB, IT, IE			
JP 2002519836	T	20020702	JP 2000-557507	19990520
EP 1282181	A2	20030205	EP 2002-25070	19990520
EP 1282181	A3	20050330		
R:	DE, ES, FR, GB, IT, IE			
HK 1036883	A1	20050429	HK 2001-105569	20010810
PRIORITY APPLN. INFO.:			US 1998-105748	A1 19980626
			EP 1999-924410	A3 19990520
			WO 1999-US11217	W 19990520
TI	Method of preparation of lithium-containing silicophosphates for electrode active material of lithium batteries			
IT	Secondary batteries (lithium; method of preparation of lithium-containing silicophosphates for electrode active material of lithium batteries)			

IT Battery cathodes
(method of preparation of lithium-containing silicophosphates for electrode active material of lithium batteries)

IT Phosphates, uses
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(silico-; method of preparation of lithium-containing silicophosphates for electrode active material of lithium batteries)

IT 252943-44-5, Lithium vanadium phosphate silicate (Li3V2(PO4)2(SiO4))
252943-46-7 252943-47-8 252943-48-9 252943-49-0
252943-50-3, Lithium vanadium phosphate silicate
(Li3.5V2(PO4)2.5(SiO4)0.5) 252943-51-4
RL: DEV (Device component use); USES (Uses)
(method of preparation of lithium-containing silicophosphates for electrode active material of lithium batteries)

AB The invention provides a new electrode active material and cells and batteries which utilize such active material. The active material is represented by the nominal general formula $\text{Li}a\text{M}'(2-b)\text{M}''\text{bSi}c\text{P}(3-c)\text{O}12$, $0 \leq b \leq 2$, $0 < c < 3$. M' and M'' are each elements selected from the group consisting of metal and metalloids elements. The value of the variable a depends upon the selection of M' and M'' and on the relative proportions designated as b and c.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 24 OF 27 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1998:197714 CAPLUS

DOCUMENT NUMBER: 128:232794

ORIGINAL REFERENCE NO.: 128:46045a,46048a

TITLE: Lithium-containing, lithium-intercalating phosphates and their use as electrode material in secondary lithium-ion battery

INVENTOR(S): Barker, Jeremy; Saidi, Mohamed-Yazid

PATENT ASSIGNEE(S): Valence Technology, Inc., USA

SOURCE: PCI Int. Appl., 42 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9812761	A1	19980326	WO 1997-US15544	19970904
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW				
RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
US 5871866	A	19990216	US 1996-717979	19960923
CA 2266365	A1	19980326	CA 1997-2266365	19970904
AU 9744102	A	19980414	AU 1997-44102	19970904
EP 931361	A1	19990728	EP 1997-942393	19970904
EP 931361	B1	20011205		
R: DE, ES, FR, GB, IT, IE				
JP 2001500665	T	20010116	JP 1998-514693	19970904
EP 1093174	A1	20010418	EP 2001-200220	19970904
EP 1093174	B1	20031217		

R: DE, ES, FR, GB, IT, IE				
ES 2169425	T3	20020701	ES 1997-942393	19970904
EP 1403945	A1	20040331	EP 2003-25462	19970904
EP 1403945	B1	20060301		
R: DE, ES, FR, GB, IT, IE				
ES 2258196	T3	20060816	ES 2003-25462	19970904
KR 2000036230	A	20000626	KR 1999-702302	19990318
HK 1023850	A1	20020823	HK 2000-100559	20000128
US 20010021472	A1	20010913	US 2001-776843	20010205
US 6720110	B2	20040413		

PRIORITY APPLN. INFO.:

	US 1996-717979	A1 19960923
	EP 1997-942393	A3 19970904
	WO 1997-US15544	W 19970904
	US 1998-204944	A1 19981203
	EP 2001-200220	A3 20010123

TI Lithium-containing, lithium-intercalating phosphates and their use as electrode material in secondary lithium-ion battery

IT Battery electrodes
(lithium-intercalating phosphates)

IT 84159-18-2P, Lithium vanadium phosphate (Li3V2(P04)3)
RL: DEV (Device component use); PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); USES (Uses)
(cathode material for secondary lithium-ion battery)

IT 36058-25-0, Iron lithium phosphate (Fe2Li3(P04)3) 186131-68-0, Iron lithium vanadium phosphate (FeLi3V(P04)3) 204653-31-6, Lithium titanium vanadium phosphate (Li3TiV(P04)3) 204653-32-7, Aluminum lithium vanadium phosphate (AlLi3V(P04)3) 204653-33-8, Chromium lithium potassium phosphate (CrLi3K(P04)3) 204653-34-9, Lithium molybdenum potassium phosphate (Li3MoK(P04)3)
RL: TEM (Technical or engineered material use); USES (Uses)
(electrode material for secondary lithium-ion battery)

AB The phosphates comprise Li(3-x)MM'(P04)3, where in the 1st condition x = 0, at least 1 of M and M' is a metal, and M and M' are the same or different from one another; and in the 2nd condition 0 < x ≤ 3 and at least 1 of M and M' has an oxidation state higher than its oxidation state in the 1st condition P compound One of M and M' is selected from Mg, Ca, Cu, Co, Fe, Ni, Mo, V, Cr, Mn, and Ti. The phosphates comprise Li3V2(P04)3, Li3VTi(P04)3, Li3Fe2(P04)3, and Li3FeV(P04)3.

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 25 OF 27 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1995:820825 CAPLUS

DOCUMENT NUMBER: 123:233358

ORIGINAL REFERENCE NO.: 123:41567a,41570a

TITLE: Secondary alkali metal battery and its electrolyte

INVENTOR(S): Coetzer, Johan

PATENT ASSIGNEE(S): Lilliwytte S. A., Luxembourg

SOURCE: S. African, 30 pp.

CODEN: SFXAB

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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ZA 9201893	A	19930913	ZA 1992-1893	19920313

PRIORITY APPLN. INFO.:

	ZA 1991-1900	A 19910314
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TI Secondary alkali metal battery and its electrolyte

IT Battery electrolytes
(alkali metal haloalkylaluminates and/or borates)

IT 12005-14-0, Aluminum lithium oxide (Al5LiO8) 12005-16-2, Aluminum sodium oxide (Al5NaO8) 12005-48-0, Aluminum sodium oxide (Al11NaO17) 12505-59-8, Aluminum lithium oxide (Al11LiO17) 58572-20-6, Sodium zirconium phosphate silicate (Na3Zr2(PO4)(SiO4)2) 81295-89-8, Lithium zirconium phosphate silicate (Li3Zr2(PO4)(SiO4)2)
RL: DEV (Device component use); USES (Uses)
(alkali metal battery separator)

IT 2397-68-4, Sodium tetraethyl aluminate 2666-13-9, Lithium tetraethyl aluminate 14568-29-7 15003-13-1, Lithium tetraethyl borate 15363-51-6, Sodium tetrabutyl aluminate 15523-24-7, Sodium tetraethyl borate 17979-83-8, Sodium tetrabutyl borate 168277-77-8 168475-28-3
RL: DEV (Device component use); USES (Uses)
(battery electrolyte)

AB The battery has an alkali metal anode, a transition metal halide cathode, and ≥ 1 liquid electrolyte $MxArpXq$, where M is an alkali metal or a mixture of these metals; A is selected from Al, B, and/or Zn; R is an organic radical or a mixture of these radicals; X is selected from organic radicals and/or halogens; x is ≥ 1 ; q is ≤ 3 ; and p + q is ≥ 4 when A is selected from Al and/or B, and ≥ 3 when A is selected from Zn and mixts. comprising Zn.

L4 ANSWER 26 OF 27 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1991:665266 CAPLUS
DOCUMENT NUMBER: 115:265266
ORIGINAL REFERENCE NO.: 115:44917a,44920a
TITLE: Intercalation in 3D-skeleton structures: ionic and electronic features
AUTHOR(S): Hagenmuller, Paul; Delmas, Claude
CORPORATE SOURCE: Lab. Chimie Solide, Univ. Bordeaux I, Talence, 33405, Fr.
SOURCE: Materials Research Society Symposium Proceedings (1991), 210(Solid State Ionics 2), 323-34
CODEN: MRSPDH; ISSN: 0272-9172
DOCUMENT TYPE: Journal
LANGUAGE: English

TI Intercalation in 3D-skeleton structures: ionic and electronic features

IT Alkali metals, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(intercalation of, electrochem., in molybdates or niobates or phosphates)

IT Energy level, band structure
(of molybdates or niobates or phosphates, alkali metal intercalation in relation to)

IT Redox reaction
(electrochem., of molybdates or niobates or phosphates, in medium containing alkali metals, intercalation in relation to)

IT Energy level
(electronic, in niobates or molybdates or phosphates, alkali metal intercalation in relation to)

IT Inclusion reaction
(intercalation, electrochem., of alkali metals in niobates or molybdates or phosphates)

IT Ultraviolet and visible spectra
(reflection, of alkali metal niobate intercalate)

IT 119536-20-8, Lithium titanium phosphate (Li1-3Ti2(PO4)3) 119536-21-9, Sodium titanium phosphate (Na1-3Ti2(PO4)3)
RL: PRP (Properties)
(charging and discharging of, intercalation in relation to)

IT 137486-03-4, Lithium neodymium niobium oxide (Li0-0.8Nd0.33NbO3)

RL: PRP (Properties)
 (electrochem. formation in electrochem. intercalation of lithium in neodymium niobate)

IT 12142-62-0, Lanthanum niobium oxide (LaNb3O9) 12164-48-6, Neodymium niobium oxide (NdNb3O9) 13769-81-8, Iron molybdate (Fe2(MoO4)3)
 RL: PRP (Properties)
 (electrochem. intercalation of alkali metals in)

IT 89623-86-9
 RL: PRP (Properties)
 (electrochem. intercalation of lithium in)

IT 7440-23-5, Sodium, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (electrochem. intercalation of, in iron molybdate)

IT 7439-93-2, Lithium, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (electrochem. intercalation of, in niobates or molybdates)

IT 137486-02-3P, Lanthanum lithium niobium oxide (La0.33Li0.08NbO3)
 RL: PREP (Preparation)
 (formation of, electrochem., in intercalation of lithium in lanthanum niobate)

IT 116589-81-2, Lanthanum lithium niobium oxide (La0.33Li0.02NbO3)
 137486-00-1, Lanthanum lithium niobium oxide (La0.33Li0.07NbO3)
 137486-01-2, Lanthanum lithium niobium oxide (La0.33Li0.01NbO3)
 RL: PROC (Process)
 (optical reflection of)

AB The voltage of an electrochem. cell, i.e. the difference between the chemical potentials of the two electrodes, may play the role of a sensor which allows to display the structural modifications and the phys. properties. The electrochem. processes involved in an alkali metal (A) intercalation electrode emphasize the influence of the ionic and/or electronic features. The A+-lattice and A+-A+ interactions as well as electronic band-filling may lead to phase transitions or even limit the intercalation reaction. The shape of the cell voltage vs. intercalation rate curve depends on the number of vacant sites available for intercalation, the number and the oxidation state of the reducible cations, the band structure of the material and the covalency of the framework. Alkali ion intercalation in 3D-structures related to perovskite (Ln1/3NbO3), hexagonal tungsten bronze (LiW3O9F) and Nasicon-type (AM2(PO4)3) is discussed from that point of view. In Ln1/3NbO3 (Ln = La, Nd) (i.e. .box. 1/2Ln1/3.box.'1/6NbO3) Li+ intercalation in various sites is related to the rare earth size. Two extra lithium atoms can be introduced into LiW3O9F in which four sites are available, but only one out of two is occupied in order to reduce the electrostatic interactions. Moreover the change in the discharge curves can be associated to the modifications with intercalation rate of the Li+-lattice interactions. Within the Nasicon derived structures of ATi2(PO4)3 and Fe2(MoO4)3 the intercalation process is limited by the lowest stable oxidation state of titanium or iron. In both systems the strong electronic localization leads to formation of large two phase-domains. The relevance of using 3D-intercalation electrodes in electrochem. power batteries will be discussed as for factors such as elec. behavior or absence of significant unit cell modifications of the pos. electrodes during the intercalation process are essential for many cycle utilizations.

L4 ANSWER 27 OF 27 CAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 1982:151389 CAPLUS
 DOCUMENT NUMBER: 96:151389
 ORIGINAL REFERENCE NO.: 96:24769a,24772a
 TITLE: Lithium anode battery
 PATENT ASSIGNEE(S): Nippon Telegraph and Telephone Public Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF

DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	JP 56162477	A	19811214	JP 1980-65972	19800520
PRIORITY APPLN. INFO.:				JP 1980-65972	A 19800520
TI	Lithium anode battery				
IT	Anodes				
	(battery, lithium)				
IT	Cathodes				
	(battery, lithium zinc germanate and lithium zirconium phosphate silicate)				
IT	7439-93-2, uses and miscellaneous				
	RL: USES (Uses)				
	(anodes, battery)				
IT	70780-99-3 81295-89-8				
	RL: PRP (Properties)				
	(cathodes, in lithium batteries)				
AB	A Li anode battery employs $\text{Li}_3\text{Zr}_2\text{Si}_2\text{PO}_{12}$ or $\text{Li}_{14}\text{Zn}(\text{GeO}_4)_4$ as the cathode active material and an electrolyte which is stable towards the cathode-active material and Li, Li^+ being transported to effect an electrochem. reaction with the cathode active material.				

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	SINCE FILE	TOTAL
COST IN U.S. DOLLARS	ENTRY	SESSION
FULL ESTIMATED COST	111.05	205.10
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
	ENTRY	SESSION
CA SUBSCRIBER PRICE	-21.32	-21.32

SESSION WILL BE HELD FOR 120 MINUTES
 STN INTERNATIONAL SESSION SUSPENDED AT 17:41:24 ON 05 MAY 2009